

PART I
THE AQUATIC AND SEMIAQUATIC HEMIPTERA
OF OKLAHOMA

PART II
THE LYGAEIDAE OF OKLAHOMA (HEMIPTERA)

By

KURT FRIEDRICH SCHAEFER
³⁴

Bachelor of Science
Panhandle A. and M. College
Goodwell, Oklahoma
1958

Master of Science
Oklahoma State University
Stillwater, Oklahoma
1962

Submitted to the Faculty of the Graduate
School of the Oklahoma State University
in partial fulfillment of the requirements
for the degree of
DOCTOR OF PHILOSOPHY
May, 1966

OKLAHOMA
STATE UNIVERSITY
LIBRARY
NOV 10 1966

PART I

THE AQUATIC AND SEMIAQUATIC HEMIPTERA OF OKLAHOMA

PART II

THE LYGAEIDAE OF OKLAHOMA (HEMIPTERA)

Thesis Approved:

William A. Drew

Thesis Adviser

U.T. Waterfall

R.R. Walton

Troy C. Dennis

J.H. Buzz

Dean of the Graduate School

321802

PREFACE

This dissertation, a local fauna study, is divided into two parts. Part One, The Aquatic and Semiaquatic Hemiptera of Oklahoma, contains keys, descriptions, distribution and illustrations for fourteen families totalling ninety-one species; Part Two, The Lygaeidae of Oklahoma (Hemiptera), contains similar information for a single family of eighty species.

The two parts are related to each other in that both concern the insect order Hemiptera. The author and William A. Drew have initiated a study of Oklahoma Hemiptera, of which this paper is a part. Three other papers have been published.

I wish to thank my major adviser, Dr. William A. Drew, and the following advisory committee, Drs. D. E. Bryan, T. C. Dorris, R. R. Walton and U. T. Waterfall for criticism of the manuscript. I would also like to thank Drs. C. Holpa, Stovall Museum, University of Oklahoma; C. Dennis, formerly at East Central State College, and G. Byers, Snow Entomological Museum, University, for the loan of specimens, and Mr. D. Arnold, Survey Entomologist, for collecting specimens.

The study was supported in part by funds given by a National Science Foundation Grant-in-Aid, 1963, at the University of Oklahoma Biological Station, G. 23583, and Public Health Service Trainee Grant, 1964-65, at Oklahoma State University, STI-WP-23-0381.

TABLE OF CONTENTS

	Page
PART I	
INTRODUCTION	1
SYSTEMATICS	
Belostomatidae	5
Corixidae	10
Gelastocoridae	41
Gerridae	42
Hebridae	55
Hydrometridae	59
Mesoveliidae	61
Naucoridae	63
Nepidae	64
Notonectidae	68
Ochteridae	75
Pleidae	76
Salidae	77
Veliidae	86
LITERATURE CITED	96
PLATE	100
PART II	
INTRODUCTION	103
SYSTEMATICS	
Lygaeidae	105
Blissinae	107
Cyminae	111
Geocorinae	112
Ischnorhynchinae	120
Lygaeinae	121

Orsillinae	124
Oxycareninae	142
Pachygronthinae	143
Rhyparochrominae	148
LITERATURE CITED	190
PLATE	193

INTRODUCTION

Oklahoma's shorelines are steadily increasing as numerous farm ponds and reservoirs are established in the state. This increase adds more and more habitats for aquatic forms. This paper is an attempt to provide a source for the recognition of aquatic and semiaquatic Hemiptera found in the state and of those probably occurring here but not yet recorded. Useful general information about aquatic and semiaquatic Hemiptera can be found in the following books: Blatchley (1926), Edmondson (1959), Pennack (1954) and Usinger (1956). The families and their taxa are arranged alphabetically in the systematics.

A Key to the Families of Aquatic and Semiaquatic Hemiptera of Oklahoma (modified from Usinger, 1956)

1. Antennae shorter than head, inserted beneath eyes, not
visible from above except in Ochteridae 2
- Antennae longer than head, inserted in front of eyes
and plainly visible from above 9

2. Rostrum very short, broad, scarcely distinguishable
from broad apex of head, not distinctly segmented;
front tarsi developed as comblike palae; nymphs
with three dorsal abdominal scent gland openings,
Fig. 1 Corixidae
- Rostrum cylindrical or cone-shaped and distinctly
three or four segmented; front tarsi not developed
as comblike palae; nymphs with scent gland open-
ings lacking or present on only one segment 3
3. Abdomen with a pair of long slender posterior
appendages, forming a respiratory siphon; hind coxae
short, free, rotary Nepidae
- Abdomen without a pair of long, slender posterior
appendages; hind coxae broadly joined to thoracic
pleura 4
4. Ocelli absent; middle and hind legs provided with
more or less extensive fringes of long swimming
hairs 5
- Ocelli present; middle and hind legs without fringes
of swimming hairs 8
5. Front legs not chelate; body strongly convex above . 6
- Front legs chelate, femora enlarged and tibiae curved
and articulating against femora; body subflattened
above 7

6. Form elongate, adults large, more than 5 mm; hind
 legs long, oarlike, without distinct claws
 Notonectidae
- Form oval, adults small, less than 3 mm; hind legs
 not long, oarlike, with two distinct claws . Pleidae
7. Membrane of hemelytra with veins, abdomen with a pair
 of short, flat, retractile posterior appendages;
 nymphs without dorsal scent gland openings
 Belostomatidae
- Membrane of hemelytra without veins; abdomen without
 posterior straplike appendages; nymphs with a pair
 of widely separated scent gland openings between
 second and third abdominal tergites . . . Naucoridae
8. Front legs raptorial, femora very broad and grooved
 along inner edges nearest curved tibiae; antennae
 concealed in grooves beneath strongly protuberant
 eyes Gelastocoridae
- Front legs similar to middle pair, fitted for
 running, antennae exposed Ochteridae
9. Hind coxae short, freely movable, rotatory 10
- Hind coxae long, broadly joined to thoracic
 pleura Saldidae
10. Claws of at least front tarsi inserted before apex 11
- Claws all inserted at tips of tarsi 12

11. Hind femora very long, greatly exceeding apex of abdomen; adults with a median metasternal scent gland opening Gerridae
- Hind femora scarcely surpassing tip of abdomen; adults with lateral metathoracic scent gland openings, Fig. 22 and 24 Veliidae
12. Head as long as entire thorax; body long and cylindrical; nymphs with dorsal abdominal scent gland openings, Fig. 17 Hydrometridae
- Head shorter, not exceeding combined length of pronotum and scutellum; nymphs with single dorsal abdominal scent gland opening 13
13. Tarsi two segmented in adults; under-surface of head deeply grooved forming rostral sulcus . . . Hebridae
- Tarsi three segmented in adults; under-surface of head without rostral groove; base of rostrum clearly visible Mesoveliidae

SYSTEMATICS

Belostomatidae

Important papers including Oklahoma Belostomatidae are Cummings (1933), DeCarlo (1938) and Lauck and Menke (1961). The latter work concerns the higher classification of the family and synonymizes the genus Benacus Stal with Lethocerus Mayr.

Characteristics: Relatively large size; oval in shape and dorso-ventrally compressed; ocelli absent; beak three-segmented; antennae four-jointed, more or less pectinate, concealed beneath eyes; scutellum large, flat, triangular, fore legs prehensile; fore tarsi two-jointed with one well developed claw, second claw rudimentary; abdomen with ventro-laterotegites clothed with varied amounts of hydrofuge hairs; abdominal venter keeled.

Key to the Species

1. Basal joint of beak longer than second; length 30 mm
or less 2
- Basal joint of beak shorter than second; length
greater than 35 mm 3

2. Length of head, side view, 35-39 mm
 Belostoma lutarium
 Length of head, side view, 25-30mm
 Belostoma flumineum
3. Anterior femora grooved for reception of tibiae . . . 4
 Anterior femora not grooved for tibial reception . .
 Lethocerus (Benacus) griseus
4. Interocular space subequalling width of an eye . . .
 Lethocerus (L.) americanus
 Interocular space narrower than width of an eye . . .
 Lethocerus (L.) uhleri

Belostoma Latreille

Belostoma Latreille, 1807. Genera Crustaceorum Insectorum, 3: 144.

Zaitha Amyot and Serville, 1843. Hist. Natur. Insectes Hemipteres, p. 430.

Perthostoma Leidy, 1847. J. Acad. Natur. Sci. Philadelphia, 1(2): 59.

Type species: Belostoma testaceopallidum Latreille, 1807. Genera Crustaceorum Insectorum, 3: 144.

Characteristics: Body elliptically shaped; hemelytral membrane well developed, wider than clavus, most of cells of equal length, abdominal sternites not subdivided by a suture;

spiracles located near center of ventral laterotergites.

Belostoma flumineum Say

Belostoma fluminea Say, 1832. Descriptions N. Sp.

Heteropterous Hemiptera N. Amer. 8: 38.

Perthostoma aurantiacum Leidy, 1847. J. Acad. Natur.

Sci. Philadelphia, 1(2): 60.

Zaitha fluminea: Dufour, 1863. Ann. Soc. Entomol.

France, ser. 4, 3: 388.

Belostoma flumineum: Hungerford, 1919. Univ. Kansas

Sci. Bull. 11: 144.

Characteristics: Length 10-22 mm, width 9-10 mm.

Distribution: Beaver, Cherokee, Cleveland, Comanche,
Delaware, Love, Marshall, Mayes, Payne and Pontotoc counties.

Belostoma lutarium (Stal)

Zaitha lutaria Stal, 1855. Ofversigt Svenska Vet. Akad.

Forhandl. 12: 190.

Belostoma lutarium: Montandon, 1910. Bull. Soc. Sci.

Bucarest, 19: 187.

Characteristics: Length 20-27 mm, width 11-18 mm.

Distribution: Jefferson, Love, Mayes, McCurtain, Payne
and Pontotoc counties.

Lethocerus Mayr

Lethocerus Mayr, 1854. Verhandl. Zool.-Bot. Ges. Wien,
2: 17.

Benacus Stal, 1862. Ofversigt Svenska Vet. Akad.
Forhandl. 18: 205.

Amorgius Stal, 1866. Hemiptera Afr. 3: 179.

Montandonista Kirkaldy, 1901. Entomol. 34: 6.

Kirkaldyia Montandon, 1909. Bull. Soc. Sci. Bucarest,
18: 138.

Type species: Lethocerus cordofanus Mayr, 1853. Ver-
handl. Zool.-Bot. Ges. Wien, 2: 17.

Characteristics: Body elliptically shaped; hemelytral
membrane well developed, wider than clavus; abdominal ster-
nites five and six subdivided laterally by a suturelike fold;
spiracles located on or adjacent to mesal margins of ventral
laterotergites.

Lethocerus (Benacus) griseus (Say)

Belostoma grisca Say, 1832. Descriptions N. Sp.

Heteropterous Hemiptera N. Amer. 8: 31.

Belostoma haldemanum Leidy, 1847. J. Acad. Natur. Sci.
Philadelphia, 1(2): 66.

Belostoma impressum Haldemann, 1853. Proc. Acad. Natur.
Sci. Philadelphia, 6: 364.

Belostoma harpax Stal, 1854. Ofversigt Svenska Vet.

Akad. Forhandl. 11: 240.

Belostoma angustatum Guerin, 1857. In Sagra, Hist.

Cuba, 7: 176.

Belostoma ruficeps Dufour, 1863. Ann. Soc. Entomol.

France, ser. 4, 3: 382.

Belostoma distinctum Dufour, 1863. Ibid.

Benacus griseus: Uhler, 1876. U. S. Geol. Geogr.

Surv. Territory, 1: 337.

Lethocerus (Benacus) griseus: Lauck and Menke, 1961.

Ann. Entomol. Soc. Amer. 54: 647.

Characteristics: Length 55-65 mm, width 18-22 mm; anterior femora not grooved for reception of tibiae.

Distribution: Cleveland, Oklahoma and Payne counties.

Lethocerus (L.) americanus (Leidy)

Belostoma grandis var. americanum, Leidy, 1847. J.

Acad. Natur. Sci. Philadelphia, 6: 58.

Belostoma litigiosum Dufour, 1863. Ann. Soc. Entomol.

France, ser. 4, 3: 383.

Belostoma obscurus Dufour, 1863. Ibid.

Belostoma americanus: Uhler, 1882. Standard Natur.

Hist. 2: 256.

Amorgius americanus: Torre-Bueno, 1905. J. New York

Entomol. Soc. 8: 44.

Lethocerus americanus: Torre-Bueno, 1908. J. New York
Entomol. Soc. 16: 237.

Characteristics: Length 50-55 mm, width 19-21 mm; inter-ocular space subequalling width of an eye.

Distribution: Cleveland, Mayes and Pontotoc counties.

Lethocerus (L.) uhleri (Montandon)

Belostoma uhleri Montandon, 1896. Ann. Soc. Entomol.
Belg. 40: 513.

Montandonista uhleri: Torre-Bueno and Brimley, 1907.
Entomol. News, 18: 434.

Amorgius uhleri: Van Duzee, 1909. Bull. Buffalo Soc.
Natur. Sci. 9: 184.

Lethocerus uhleri: Blatchley, 1926. Heteroptera E. N.
Amer. p. 1043.

Lethocerus (L.) uhleri: Lauck and Menke, 1961. Ann.
Entomol. Soc. Amer. 54: 647.

Characteristics: Length 40-48 mm, width 16-18 mm; inter-ocular space narrower than width of an eye.

Distribution: Pontotoc County.

Corixidae

The greatest aid to workers with the waterboatman family is Hungerford's 1948 monograph of western hemispheric corixids. In his work the world corixids are arranged into five sub-

families. Oklahoma corixids belong to Corixinae, cosmopolitan in distribution, composed of four tribes. Represented in the state are Graptocorixini and Corixini. Schaefer and Drew (1964) reported eighteen species in the state, and Ewing (1964) added one.

Characteristics: Dorso-ventrally flattened; head broad, triangular in front view, concave posteriorly; rostrum short, subconate, apparently unsegmented, firmly attached as part of the head; eyes triangular in outline, ocelli absent; antennae short, three segmented; scutellum hidden by pronotum; hemelytra usually of four divisions, clavus, corium, embolium and membrane, the membrane is without veins and may be textured like the corium; each pair of legs modified for a different function, anterior pair short, terminal segment (pala) often more or less spoon-shaped and fringed with bristles, food-gathering function, middle pair long, slender terminating with two long claws, anchorage and supporting function, hind pair stouter, laterally flattened and fringed with hairs, swimming function; abdominal segments of males asymmetrical, females symmetrical; thoracic scent gland opening (osteole) opening laterally on mesocoxae.

Taxonomic Characters

The principal dimorphic structures used as key characters are as follows. Males are usually smaller, with vertex of the

head often more produced and frons concavely depressed. Form and chaetotaxy of the male palae, front tarsi, are much used characters. Female abdomen is symmetrical, while the asymmetry of male may be either to the right (dextral) or left (sinistral). Hungerford (1948) and Sailer (1948) report that dextrally or sinistrally asymmetrical species deviate infrequently. Sixth abdominal male tergite often bears a dark structure (strigil) of "comb-like teeth"; its location corresponds directly with abdominal asymmetry. The venter and appendages of the male are usually a darker color than those of the female.

For a complete treatment of the New World corixids, consult Hungerford (1948) and Sailer (1948).

Key to the Species

1. Apical claw of fore tarsi spinelike; resembling
other spines along lower margin of palm; palae
not narrowly digitiform 2
Apical claw of fore tarsi thick, well-developed; palae
narrowly digitiform, Fig. 5 . Graptocorixa abdominalis
2. Small, less than 5.6 mm long; males sinistrally
asymmetrical as seen from below; fore tibiae of
males produced apically over short, triangular
palae; females with apex of clavus not reaching
beyond a horizontal line extended through the costal

- margin of hemelytra at the nodal furrow, Fig. 6 . . . 3
- Large, often greater than 5.6 mm long (except Cori-
sella, Ramphocorixa, Sigara and Palmacorixa); males
dextrally asymmetrical as seen from below; fore
tibiae of males not produced apically over palae;
females with apices of clavus reaching to or beyond
a horizontal line extended through the costal margin
of hemelytra at the nodal furrow 10
3. Pronotal disc, at middle, one-fourth its width . . .
. Trichocorixa macroceps
Pronotal disc, at middle, about three-fourths its
width 4
4. Interocular width distinctly exceeding width of an
eye, as seen from above, along its posterior margin
. Trichocorixa reticulata
Interocular width usually less than width of an eye,
as seen from above, along its posterior margin . . 5
5. Males 6
Females 8
6. Left, dorsal posterior lobe of abdomen with lateral
anterior angle produced to form a lobe, causing the
lateral margin to appear concave at some region along
the distance to the apex
. Trichocorixa verticalis interiores

- Left, dorsal posterior lobe of abdomen with lateral
margin appearing evenly convex 7
7. Strigil seemingly little more than a heavy dark line,
sharply curved upward mesally . . . Trichocorixa calva
Strigil normally shaped, with distinct comblike rows
of "teeth" Trichocorixa kanza
8. Polished area along costal margin of hemelytra ante-
rior to nodal furrow equal to or less than length
of middle tibiae . Trichocorixa verticalis interiores
Polished area along costal margin of hemelytra ante-
rior to nodal furrow greater than length of middle
tibiae 9
9. Polished prenodal costal margin parallel, or nearly
so, to apex, costal margins with a sudden emargina-
tion, Fig. 3 Trichocorixa kanza
Polished prenodal costal margin not parallel to apex,
costal margins with a gradual emargination, Fig. 4
. Trichocorixa calva
10. Interocular width much narrower than the width of an
eye; head sharply curved along short pronotum; body
surface rugulose; dorsal medial lobe of male's
seventh abdominal segment bearing a hook-like pro-
jection 11
- Interocular width subequal or greater than width of
an eye; head variable not as above; body surface

- not or faintly rugulose; dorsal medial lobe of male's seventh abdominal segment without a hook-like projection 12
11. Middle femora of male with a ventral longitudinal row of spines, more than 40
. Palmacorixa nana walleyi
- Middle femora of male without a ventral longitudinal row of spines Palmacorixa buenoi
12. Smooth, shining, never more than faintly rugulose; lateral lobes of prothorax typically with sides tapering to a narrowly rounded apex; palae of male triangular, about equal to tibial length, with a row of pegs on dorsal margin and another in or near the upper palmar row of bristles 13
- Usually rastrate, rugulose or effaced; lateral lobes of prothorax not tapering to a rounded apex; palae of male rectangular, peg row centrally located . 14
13. Large, usually over 6.5 mm long, some males smaller; male's forelegs without an apical, outwardly-pointed peg on tibiae and on upper swollen portion of palae Corisella edulis
- Small, under 6.5 mm long; male's forelegs with an apical outwardly-pointed peg on tibiae and on upper swollen portion palae, Fig. 9 . . Corisella tarsalis

14. Body short, broad, more than one-third as broad as long; distal portion of corium semihyaline with color pattern effaced Morphocorixa compacta
 Body long, narrow, less than one-third as broad as long 15
15. Palae of male, upper surface deeply incised; vertex of male acuminate; both sexes with palar claws serrate at base; length less than 5.5 mm
 Ramphocorixa acuminata
 Palae of male not incised; vertex of male not acuminate; palar claws of both sexes not serrate at base; length greater than 5.5 mm 16
16. Prothoracic lobe quadrate or trapezoidal; pruinose area along claval suture, shorter than the postnodal pruinose area; front tibiae of male with a spiniform tuft of hairs near apices; females never with anal lobes notched; length greater than 8 mm, Fig. 2 . 17
 Combination of characters not as above, Fig. 1 . . 22
17. Color orange to red with two transverse black bands Hesperocorixa brimleyi
 Color not orange or red 18
18. Color pattern of hemelytra in part effaced, at least on corium Hesperocorixa lucida
 Color pattern of hemelytra not effaced 19

19. Hemelytral pattern reticulate; pronotal surface not
 rastrate Hesperocorixa laevigata
 Hemelytral pattern not reticulate; pronotal surface
 faintly to strongly rastrate 20
20. Corium with pale bands beyond hemelytral suture form-
 ing slender transverse series; corium and membrane
 not plainly separated Hesperocorixa vulgaris
 Corium with pale bands beyond hemelytral suture not
 forming slender transverse series or, if so, then
 corium and membrane plainly separated 21
21. Hind femora ventrally and basally with a row of about
 10 spines Hesperocorixa nitida
 Hind femora ventrally and basally with a row of 6
 spines Hesperocorixa obliqua
22. Hemelytral pattern reticulate; hemelytra and face
 hairy; length 6.9-7.8 mm . . . Cenocorixa utahensis
 Hemelytral pattern not reticulate; hemelytra and face
 not hairy; length 4.4-6.9 mm 23
23. Hemelytra solid black, border and sutures white . . .
 Sigara (Pediosigara) hydatotrephes
 Hemelytra not solid black, bordered in white . . . 24
24. Length more than 6.3 mm
 Sigara (Vermicorixa) alternata (part)
 Length less than 6.3 mm 25

25. Scent gland osteole nearer the lateral bend of the
mesoepimeron than to its tip 26
- Scent gland osteole nearer tip than to lateral bend
of the mesoepimeron 27
26. Osteole almost in lateral bend of mesoepimeron, and
connected to metasternum by a broad, oftendark coxal
piece, Fig. 1 . . . Sigara (Vermicorixa) grossolineata
Osteole not in lateral bend of mesoepimeron
. Sigara (Vermicorixa) modesta
27. Corial pattern in more or less definite longitudinal
series Sigara (Vermicorixa) hubbelli
Corial pattern not in longitudinal series 28
28. Palae of male with row of pegs nearer the dorsal
margin than palm, peg row in gentle curve, Fig. 8 .
. Sigara (Vermicorixa) alternata (part)
Palae of males with row of pegs nearer to palm than
dorsal margin, peg row undulate, Fig. 7
. Sigara (Vermicorixa) pectenata

Cenocorixa Hungerford

Cenocorixa Hungerford, 1948. Univ. Kansas Sci. Bull.

32: 564.

Type species: Arctocorixa wileyi Hungerford, 1926. Can.

Entomol. 48: 271.

Characteristics: Medial pronotal carina, visible only on

anterior third; claws of middle leg longer than their tarsus; male dextral abdominal asymmetry.

Cenocorixa utahensis (Hungerford)

Arctocorixa utahensis Hungerford, 1925. Bull. Brooklyn Entomol. Soc. 20: 22.

Cenocorixa utahensis: Hungerford, 1948. Univ. Kansas Sci. Bull. 32: 580.

Characteristics: Length 6.9-7.8 mm, width of head across eyes 2.1-2.4 mm; color light; pronotum crossed by nine or ten regular, sometimes broken very narrow dark lines; claval and corial pattern of narrow, broken dark lines arranged in irregularly transverse series; membranal pattern usually continuous with corium, embolium pale; strigil subquadrate, ten combs.

Distribution: Hungerford (1948) gives as part of the species distribution Colorado, Kansas and Texas.

Corisella Lundblad

Corisella Lundblad, 1928. Zool. Anzeiger, 79: 158.

Trichocorixa (Corisella): Walton, 1943. Trans. Soc. Brit. Entomol. 8: 157.

Type species: Corixia mercenaria Say, 1832. Descriptions N. Sp. Heteropterous Hemiptera N. Amer. p. 39.

Characteristics: Male palae triangular, two rows of pegs;

fore tibiae produced above over dorsal base of palae; strigil dextral; membrane suture marked by pale line; male, dextral abdominal symmetry.

Corisella edulis (Champion)

Corixa edulis Champion, 1901. Biol. Centr. Amer.

Heteroptera 2: 380.

Arctocorisa edulis: Kirkaldy and Torre-Bueno, 1909.

Proc. Entomol. Soc. Washington, 10: 195.

Corisella edulis: Lundblad, 1928. Zool. Anzeiger 79: 158.

Characteristics: Length 6.3-7.98 mm, width of head across eyes 1.9-2.48 mm; color light; pronotum crossed by ten or twelve very slender transverse dark bands, may be effaced laterally; clavus, corium and membrane marked with short, transverse, undulate, irregular dark lines, arranged to form longitudinal series; pattern effaced at base of clavi; membrane separated from corium by pale line; embolia smoky to white; strigil large oval, four combs.

Distribution: Beaver, Cimarron, Marshall, Mayes and Tulsa counties.

Corisella tarsalis (Fieber)

Corisa tarsalis Rieber, 1851. Sp. Generis Corisa, p. 19.

Corixa tumida Uhler, 1877. Bull. U. S. Geol. Geogr.

Surv. 3: 454..

Arctocorisa tarsalis: Kirkaldy and Torre-Bueno, 1909.

Proc. Entomol. Soc. Washington, 10: 197.

Arctocorixa tarsalis: Van Duzee, 1917. Univ. California

Pub. Entomol. 2: 484.

Corisella texcocana Jaczewski, 1931. Ann. Mus. Zool.

Pol. 9(15): 202.

Sigara tarsalis: Lundblad, 1931. Zool. Anzeiger Bd. 96: 86.

Corisella tumida: Walley, 1936. Can. Entomol. 68: 62.

Corisella tarsalis: Hungerford, 1948. Univ. Kansas Sci.

Bull. 32: 260.

Characteristics: Length 5.3-6.6 mm, width of head across eyes 1.47-1.93 mm; color light; pronotum crossed by nine to ten narrow dark bands; clavus, corium and membrane reticulate pattern, inner basal angles nearly immaculate; embolium pale with dark spot at apex; vertex of male almost acuminate, rounded apex with definite narrow carina, vertex of female broadly rounded; strigil very small, three combs.

Distribution: Beaver and Cimarron counties.

Graptocorixa Hungerford

Graptocorixa Hungerford, 1930. Pan-Pacific Entomol. 7: 22.

Type species: Corixa abdominalis Say, 1832. Descriptions N. Sp. Heteropterous Hemiptera N. Amer. p. 38.

Characteristics: The abdominal color pattern, dorsal-ventral, basally reddish, and digitiform palae are sufficiently

unique characters to separate it from the other Oklahoma genera.

Graptocorixa abdominalis (Say)

Corixa abdominalis Say, 1832. Descriptions N. Sp.

Heteropterous Hemiptera N. Amer. p. 38.

Corisa abdominalis: Uhler, 1894. Proc. California Acad.

Sci. ser. 2,4: 294.

Arctocorisa abdominalis: Kirkaldy and Torre-Bueno, 1909.

Proc. Entomol. Soc. Washington, 10: 194.

Arctocorixa abdominalis: Van Duzee, 1917. Univ.

California Pub. Entomol. 2: 478.

Graptocorixa abdominalis: Hungerford, 1930. Pan-Pacific

Entomol. 7(1): 32.

Characteristics: Length 8.5-10.8 mm, width across head across eyes 2.8-3.5 mm; color dark, abdomen dorsal and ventral largely reddish-orange; pronotum crossed by 12-16 dark bands, anterior one broader, posterior ones often broken; claval and corial patterns of long, undulate, transverse bands, black bands most often the larger; membranepattern broken and more irregular; embolium yellowish basally to dark apically.

Distribution: Beaver, Cimarron and Woods counties.

Hesperocorixa Kirkaldy

Arctocorisa (Hesperocorixa) Kirkaldy, 1908. Can.

Entomol. 40: 118.

Callicorixa (Anticorixa) Jaczewski, 1924. Ann. Zool.

Mus. Pol. Hist. Nat. 3: 76.

Hesperocorixa: Blatchley, 1926. Heteroptera E. N.

Amer. : 1081.

Type species: Arctocorisa (Hesperocorixa) Brimleyi

Kirkaldy, 1908. Can. Entomol. 40: 120.

Characteristics: Length 8-11 mm; pruinose area along claval suture shorter ($1/3$ - $1/2$) than pruinose area beyond nodal furrow; medial vein reaches nodal furrow; lateral lobe of prothorax quadrate, apex often obliquely truncate; palae of male subparallel-sided, apex blunt, rounded or truncate, one row of pegs repeating more or less curvature of upper margin; front tibiae of male with subapical spiniform bundle of stiff hairs; strigil relatively large, oval or elongate; male dextral abdominal asymmetry.

Hesperocorixa brimleyi (Kirkaldy)

Arctocorisa (Hesperocorixa) brimleyi Kirkaldy, 1908.

Can. Entomol. 40: 120.

Arctocorisa brimleyi: Kirkaldy and Torre-Bueno, 1909.

Proc. Entomol. Soc. Washington, 10: 194.

Arctocorixa (Hesperocorixa) brimleyi: Van Duzee, 1917.

Univ. California Pub. Entomol. 2: 485.

Hesperocorixa brimleyi: Blatchley, 1926. Heteroptera

E. N. Amer. : 1081.

Arctocorixa brimleyi: Hungerford, 1928. Entomol. News,
39: 156.

Corixa (Hesperocorixa) brimleyi: Hutchinson, 1940.

Trans. Connecticut Acad. Arts Sci. 33: 413.

Characteristics: Length 8.2-8.8 mm, width of head across eyes 2.4-2.9 mm; color reddish-orange, two dark transverse bands, one across base of hemelytra, second across area distally to clavus; pronotum without crossbanding; embolium smoky; lateral lobe of prothorax obliquely truncate, anterior apical angle produced, mesoepimeron broad with osteole remote from tip; strigil suboval, five regular combs.

Distribution: McCurtain County.

Hesperocorixa laevigata (Uhler)

Corisa laevigata Uhler, 1893. Proc. Entomol. Soc.

Washington, 2: 384.

Arctocorisa laevigata: Kirkaldy and Torre-Bueno, 1909.

Proc. Entomol. Soc. Washington, 10: 196.

Arctocorixa laevigata: Van Duzee, 1917. Univ. California

Pub. Entomol. 2: 481.

Sigara (Anticorixa) laevigata: Jaczewski, 1936. Proc.

Royal Entomol. Soc. London, 5 pt. 2, ser. 3, p. 42.

Corixa laevigata: Walton, 1943. Trans. Soc. Brit.

Entomol. 8 pt. 5, p. 161.

Hesperocorixa laevigata: Hungerford, 1948. Univ. Kansas
Sci. Bull. 32: 521.

Characteristics: Length 9.9-11 mm, width of head across eyes 3.2-3.6 mm; color generally dark; pronotum crossed by twelve irregular black bands; claval pattern wavy, zigzag lines, pale lines slender; corial pattern not as broken, pale lines not as slender as above; pattern of membrane much interrupted, continuous with corium; embolium silvery white; lateral lobe of prothorax quadrate, rounded at apex; mesoepimeron narrow, osteole near tip; strigil elongate, side parallel, ends rounded, six to eight combs.

Distribution: Tulsa County.

Hesperocorixa lucida (Abbott)

Arctocorisa lucida Abbott, 1916. Entomol News, 27: 341.

Arctocorixa lucida: Van Duzee, 1917. Univ. California
Pub. Entomol. 2: 482.

Sigara (Anticorixa) lucida: Jaczewski, 1936. Proc.

Royal Entomol. Soc. London, 5 pt. 2, ser. B, p. 43.

Hesperocorixa lucida: Hungerford, 1948. Univ. Kansas
Sci. Bull. 32: 517.

Characteristics: Length 8.5-9.4 mm; width of head across eyes 2.8-3 mm; color generally dark; pronotum reddish-tan, crossed by seven to eight faint, dark bands; clavus often solid brownish-black, obscure transverse pale line anteriorly,

claval suture yellowish; corium with irregular dark pattern narrowly along claval suture enlarging into an irregular globular form distally to the apex of the clavus, enlarging toward lateral apex of the postnodal pruinose area of hemelytra, remainder of corium translucent, yellowish-brown, apex of corium often reddish; embolium smoky; membrane dark with faint pale transverse pattern to lighter with more of pale pattern showing; lateral lobe of prothorax quadrate apex truncate; mesoepimeron narrow, osteole near tip; strigil ovate, eight regular combs.

Distribution: McCurtain County.

Hesperocorixa nitida (Fieber)

Corisa nitida Fieber, 1851. Sp. Generis Corisa, p. 28.

Arctocorisa nitida: Kirkaldy and Torre-Bueno. Proc.

Entomol. Soc. Washington, 10: 196.

Arctocorixa nitida: Parshley, 1914. Psyche. 21(5): 140.

Sigara nitida: Lundblad, 1929. Archiv. Hydrobiol. 20: 300.

Sigara (Anticorixa) nitida: Jaczewski, 1936. Proc. Royal

Entomol. Soc. London, 5 pt. 2, ser. B, p. 42.

Hesperocorixa nitida: Hungerford, 1948. Univ. Kansas

Sci. Bull. 32: 539.

Characteristics: Length 8-9 mm, width of head across eyes 2.7-3.1 mm; color generally dark; pronotum with nine or ten broad, regular transverse black bands; claval pattern

more or less regular transverse series, darker bands broader than pale ones, more irregular distally; corial pattern irregular, broken but still in nearly transverse series, dark areas appear to merge just beyond apex of clavus and again at corial apex and membrane on costal margin, these dark areas appear as two pairs of dark spots; membrane pattern continuous with corium but more broken and irregular, embolium smoky to black; lateral lobe of prothorax quadrate, apex slightly rounded; mesoepimeron narrow, osteole near tip; strigil small, sides parallel, ends rounded, eight regular combs.

Distribution: McCurtain County.

Hespercorixa obliqua (Hungerford)

Arctocorixa obliqua Hungerford, 1925. Bull. Brooklyn Entomol. Soc. 20: 142.

Sigara (Anticorixa) obliqua: Jaczewski, 1936. Proc. Royal Entomol. Soc. London, 5 pt. 2, ser. B, p. 42.

Hesperocorixa obliqua: Hungerford, 1948. Univ. Kansas Sci. Bull. 32: 543.

Characteristics: Length 10-11 mm; width of head across eyes 3.4-3.6 mm; color generally dark; pronotum crossed by about twelve narrow black bands, somewhat broken posteriorly; dark bands of clavus narrower at base than pale areas, distally dark bands broaden into transverse series although

irregular and broken; corial pattern wavy and broken throughout, lines transverse but very irregular; membrane color pattern continuous with corium; embolium smoky to black; lateral lobe of prothorax quadrate, apex nearly truncate, anterior apical angle slightly produced; mesoepimeron narrow, osteole near tip; strigil elongate, eight regular combs.

Distribution: Beaver and Payne counties.

Hesperocorixa vulgaris (Hungerford)

Arctocorixa vulgaris Hungerford, 1925. Bull. Brooklyn Entomol. Soc. 20: 143.

Sigara (Anticorixa) vulgaris: Jaczewski, 1931. Arch. Hydrobiol. 23: 514.

Hesperocorixa vulgaris: Hungerford, 1948. Univ. Kansas Sci. Bull. 32: 530.

Characteristics: Length 9.2-10.1 mm, width of head across eyes 3-3.3 mm; color generally dark; pronotum crossed by ten broad black bands; clavus dark bands broad, somewhat zigzag transverse series; corial pattern transversely marked by pale bands forming slender transverse series; embolium yellowish white; membrane continuous with corial pattern more broken; lateral lobe of prothorax quadrate, apex slightly rounded; mesoepimeron narrow, osteole near tip; strigil slenderly elongate, five regular combs.

Distribution: Hungerford (1948) gives as part of species

distribution Kansas and Texas.

Morphocorixa Jaczewski

Sigara (Morphocorixa) Jaczewski, 1931. Ann. Mus. Zool.

Pol. 9(15): 197.

Trichocorixa (Morphocorixa): Walton, 1943. Trans. Soc.

Brit. Entomol. 8: 157.

Morphocorixa: Hungerford, 1948. Univ. Kansas Sci. Bull.

32: 422.

Type species: Arctocorixa compacta Hungerford, 1925.

Bull. Brooklyn Entomol. Soc. 20: 22.

Characteristics: Short, broad, more than 1/3 as broad as long; embolar area wide; strigil absent; male dextral abdominal asymmetry.

Morphocorixa compacta (Hungerford)

Arctocorixa compacta Hungerford, 1925. Bull. Brooklyn

Entomol. Soc. 20: 22.

Neosigara compacta: Lundblad, 1928. Entomol. Tijdschr.

48: 227.

Sigara (Morphocorixa) compacta: Jaczewski, 1931. Ann.

Mus. Zool. Pol. 9(15): 197.

Morphocorixa compacta: Hungerford, 1948. Univ. Kansas

Sci. Bull. 32: 423.

Characteristics: Length 5.9-7 mm, width of head across eyes 1.96-2.38 mm; color generally pale; pronotum crossed by seven or eight dark bands, pale bands slightly wider; claval and corial patterns dark bands transverse but very narrow, irregular and broken; membrane pattern similar to above but more obliterated; embolium basally dark to distally silvery white; pruinose area of claval sutures dark.

Distribution: Beaver County.

Palmacorixa Abbott

Palmacorixa Abbott, 1912. Entomol. News, 23: 337.

Trichocorixa (Palmacorixa) Walton, 1943. Trans. Soc.

Brit. Entomol. 8: 157.

Type species: Palmacorixa gilletti Abbott, 1912. Entomol. News, 23: 337.

Characteristics: Hemelytra narrow, elongate, with vermiculate markings, tapered posteriorly, only slightly overlapping at tips, membraneous area very small, narrow, not separated from corium; hindwings usually aborted and non-functional; male, dextral abdominal asymmetry.

Palmacorixa buenoi Abbott

Palmacorixa buenoi Abbott, 1913. Can. Entomol. 45: 113.

Characteristics: Length 4.3-6 mm, width of head across

eyes 1.2-1.6 mm; color light to dark; pronotum crossed by four to nine brown lines, varying in width and regularity; hemelytral pattern reticulate; embolium pale; strigil very small, four combs.

Distribution: Hungerford (1948) gives as part of the species distribution Kansas and Texas.

Palmacorixa nana walleyi Hungerford

Palmacorixa nana walleyi Hungerford, 1948. Univ. Kansas Sci. Bull. 32: 251.

Characteristics: Length 4.8-5.5 mm, width of head across eyes 1.4-1.5 mm; color pale; pronotal disk and hemelytral pattern similar to P. buenoi, brown markings on base of clavus often partially effaced; strigil very small, oval, four combs.

Distribution: Hungerford (1948) gives as part of the species distribution Kansas, New Mexico and Texas.

Ramphocorixa Abbott

Ramphocorixa Abbott, 1912. Can. Entomol. 64: 120.

Type species: Corixa acuminata Uhler, 1897. Trans. Maryland Acad. Sci. 1: 392.

Ramphocorixa acuminata (Uhler)

Corixa acuminata Uhler, 1897. Trans. Maryland Acad.

Sci. 1: 392.

Corisa scutellata Crevecoeur, 1904. Trans. Kansas

Acad. Sci. 19: 234.

Ramphocorixa balanodis Abbott, 1912. Can. Entomol.

44: 118.

Ramphocorixa acuminata: Hungerford, 1917. J. New York

Entomol. Soc. 25: 114.

Characteristics: Length 5-5.5 mm, width of head across eyes 1.47-1.85 mm; color pale, pattern partially or completely effaced; pronotum crossed by four nearly straight bands; clavus nearly transparent margined brown, near scutellum immaculate; corial pattern interrupted or obsolete, fusing to form three faint irregular longitudinal stripes on each hemelytrum, continuing on to membranes; vertex of male strongly produced and carinate, female broadly rounded; palae of male dorsally deeply incised; strigil small, one comb.

Distribution: Beaver, Carter, McCurtain, Marshall and Tulsa counties.

Sigara Fabricius

Sigara Fabricius, 1775. Syst. Entomol. p. 691.

Corixa (Sigara) Walton, 1940. Trans. Connecticut

Acad. Arts Sci. 33: 345.

Type species: Notonecta striata Linneaus, 1758. Syst. Natur. 10 Ed. p. 439.

Characteristics: Lateral lobe of prothorax elongate; apex rounded; anterior tibiae with a few small apical spines; male's abdominal asymmetry dextral.

Sigara (Pediosigara) hydatotrepes (Kirkaldy)

Arctocorixa hydatotrepes Kirkaldy, 1908. Can. Entomol. 40: 119.

Arctocorixa hydatotrepes: Van Duzee, 1917. Univ. California Pub. Entomol. 2: 481.

Sigara (Pediosigara) hydatotrepes: Hungerford, 1948. Univ. Kansas Sci. Bull. 32: 638.

Characteristics: Length 5.3-6 mm, width of head across eyes 1.57-1.7 mm; color black; pronotum crossed by three or four narrow pale lines, remainder black, clavus, corium and membrane black, sutures and margins pale.

Distribution: McCurtain County.

Sigara (Vermicorixa) alternata (Say)

Corixa alternata Say, 1825. J. Acad. Nat. Sci. Philadelphia, 4: 329.

Corisa alternata: Fieber, 1851. Sp. Generis Corisa, p. 43.

Corisa erichsonii Fieber, 1851. Ibid. p. 35.

Corixa striata Uhler, 1876. Bull. U. S. Geol. Geog.

Surv. Territories, 1(5): 340.

Corisa striata: Gillette and Baker, 1895. Colorado

State Exp. Sta. 31, Tech. ser. 1, p. 64.

Arctocorisa alternata: Kirkaldy and Torre-Bueno, 1909.

Proc. Entomol. Soc. Washington, 10: 194.

Arctocorisa erichsonii: Kirkaldy and Torre-Bueno, 1909.

Ibid. p. 195.

Arctocorixa alternata: Abbott, 1913. Bull. Brooklyn

Entomol. Soc. 8(6): 87.

Arctocorisa parshleyi Abbott, 1916.. Entomol. News. 27: 342.

Arctocorixa erichsonii: Van Duzee, 1917. Univ. Cali-

fornia Pub. Entomol. 2: 480.

Arctocorixa parshleyi: Van Duzee, 1917. Ibid. p. 483.

Sigara parshleyi: Lundblad, 1929. Zool. Anzeiger,

Bd. 80, Heft 7/9, p. 193.

Sigara (Vermicorixa) alternata: Hungerford, 1948. Univ.

Kansas Sci. Bull. 32: 653.

Characteristics: Length 5.5-6.9 mm, width of head across eyes 1.7-2 mm; color brown; pronotum crossed by eight or nine narrow dark bands; clavus transversely banded by light and dark stripes of equal width; corial and membranal pattern similar, scattered, wavy, broken, corium and membrane separated by a pale line, embolium and claval suture smoky; strigil small, nearly round, seven combs.

Distribution: Beaver, Carter, Cimarron and Kay counties.

Sigara (Vermicorixa) modesta (Abbott)

Arctocorisa modesta Abbott, 1916. Entomol. News, 27: 343.

Arctocorixa modesta: Van Duzee, 1917. Univ. California
Pub. Entomol. 2: 482.

Sigara (Vermicorixa) modesta: Hungerford, 1948. Univ.
Kansas Sci. Bull. 32: 666.

Characteristics: Length 4.6-5.7 mm, width of head across eyes 1.5-1.9 mm; color brown; pronotum crossed by six to eight regular dark bands, equal in width to pale bands; clavus dark cross bands, thicker in central portions giving the appearance of a dark spot, dark band effaced at inner basal angles; corial pattern irregular, tending to coalesce near inner distal angle to form a longitudinal stripe, outer distal angle hyaline; membrane separated from corium by pale line, pattern irregular and broken, embolium pale; strigil small, three combs.

Distribution: Comanche County.

Sigara (Vermicorixa) grossolineata Hungerford

Sigara (Vermicorixa) grossolineata Hungerford, 1948.

Univ. Kansas Sci. Bull. 32: 676.

Characteristics: Length 4.7-5.6 mm, width of head across eyes 1.6-1.9 mm; color brown; pronotum crossed by eight

regular brown bands, pale and dark band equal thickness; hemelytra color pattern variable; clavus almost solid or crossbanded but dark bands coalesce along median suture; corial pattern varies from solid brown to definite mottled pattern, outer distal angle pale; membrane separated by a pale line from corium, pattern reticulated, distal margin solid brown; embolium pale; strigil small, three combs.

Distribution: Craig, Oklahoma and Tulsa counties.

Sigara (Vermicorixa) hubbelli (Hungerford)

Arctocorixa hubbelli Hungerford, 1928. Can. Entomol.
60: 228.

Sigara (Vermicorixa) hubbelli: Hungerford, 1948. Univ.
Kansas Sci. Bull. 32: 696.

Characteristics: Length 4.6-5.6 mm, width of head across eyes 1.7-1.9 mm; color light; pronotum crossed by six to eight narrow brown bands, one-half as wide as pale bands; clavus often effaced on inner basal angle, elsewhere cross-banded; corial pattern irregular, dark lines arranged in nearly longitudinal series; membrane pattern obscure, effaced, separated from corium by broad pale line; embolium pale; strigil small, five rows of combs.

Distribution: Hungerford (1948) gives as part of the species distribution Arkansas, Kansas and Missouri.

Sigara (Vermicorixa) pectenata (Abbott)

Arctocorisa pectenata Abbott, 1913. Bull. Brooklyn

Entomol. Soc. 8: 83.

Arctocorixa pectenata: Van Duzee, 1917. Univ. Cali-

fornia Pub. Entomol. 2: 483.

Sigara (Vermicorixa) pectenata: Hungerford, 1948. Univ.

Kansas Sci. Bull. 32: 705.

Characteristics: Length 4.4-5 mm, width of head across eyes 1.5-1.7 mm; color dark; pronotum crossed by seven or eight narrow brown bands, effaced on inner basal angle; corial pattern, short, irregular brown markings arranged in more or less transverse series; membrane separated from coria by pale line; embolium smoky to black; strigil suboval, five combs.

Distribution: Tulsa County.

Trichocorixa Kirkaldy

Trichocorixa Kirkaldy, 1908. Can. Entomol. 40(3): 117.

Arctocorixa (Trichocorixa) Jaczewski, 1927. Ann. Mus.

Zool. Pol. 6(3): 256.

Type species: Corisa verticalis Fieber, 1851. Abhandl. Bohemosl. Gesell. Vissensch. Prague, p. 24.

Characteristics: Small size, less than 5.6 mm in length; pronotum covering scutellum, palae of male triangular shaped,

fore tibiae produced apically over dorsal base of palae;
 abdominal asymmetry of male sinistral; a line drawn through
 costal margins at nodal furrow exceeding apices of clavi,
 more pronounced in female.

This genus was revised by Sailer (1948).

Trichocorixa calva (Say)

Corixa calva Say, 1832. Descriptions N. Sp. Heterop-
 terous Hemiptera N. Amer. p. 38.

Corisa burmeisterii Fieber, 1851. Abhandl. Bohemosl.
 Gesell. Vissensch. Prague, p. 24.

Trichocorixa burmeisterii: Landblad, 1931. Zool. Anz.,
 Bd. 96, Heft 3/4: 85.

Trichocorixa calva: Sailer, 1948. Univ. Kansas Sci.
 Bull. 32: 310.

Characteristics: Length 3.8-4.6 mm; color pale; pro-
 notum crossed by eight to nine dark lines, often broken;
 hemelytra coarsely reticulose, base of clavi with pronounced
 oblique lines, membranes and coria not separated, long.

Distribution: Beaver, Craig, Delaware and Tulsa counties.

Trichocorixa kanza Sailer

Trichocorixa kanza Sailer, 1948. Univ. Kansas Sci. Bull.
 32: 318.

Characteristics: Length 4.2-4.5 mm; color and hemelytra

similar to T. calva, separated by key couples.

Distribution: Beaver, Carter, Lincoln and McCurtain counties.

Trichocorixa macrocephala (Kirkaldy)

Arctocorisa macrocephala Kirkaldy, 1908. Can. Entomol. 40: 118.

Corixa macrocephala: Abbott, 1913. Bull. Brooklyn Entomol.

Soc. 8: 86.

Trichocorixa micronectoides Blatchley, 1926. Heterop-

tera E. N. Amer. p. 1085.

Trichocorixa macrocephala: Lundblad, 1931. Zool. Anzeiger

Bd. 96, Heft 3/4: 92.

Characteristics: Length 2.8-3.2 mm; color brownish; pronotum crossed by three transverse dark lines, often broken or obscure; hemelytral pattern tending to coalesce into two longitudinal vitta with inner connecting bars, right membrane infuscated, left membrane nearly transparent.

Distribution: McCurtain County.

Trichocorixa reticulata (Guerin-Meneville)

Corisa reticulata Guérin-Meneville, 1857. In Sagra,

Hist. de Cuba, 6: 423.

Corixa wallengreni Stål, 1859. Zool. 4: 268.

Corixa blackburni White, 1877. Ann. Mag. Natur. Hist.

4(20): 114.

Corixa mariae Champion, 1901. Biol. Centr.-Amer.

Heteroptera, 2: 378.

Arctocorisa Blackburni: Kirkaldy, 1910. Fauna Hawaii-
ensis 2(6): 554.

Trichocorixa mariae: Jaczewski, 1927. Ann. Mus. Zool.
Pol. Hist. Natur. 6(3): 257.

Trichocorixa blackburni: Hungerford, 1928. Brooklyn
Entomol. Soc. Bull. 23: 174.

Trichocorixa wallengreni: Lundblad, 1929. Entomol.
Tijdskr. 50(1): 24.

Trichocorixa reticulata: Lundblad, 1931. Zool. Anzeiger
Bd. 96, Heft 3/4: 91.

Characteristics: Length 2.8-5.2 mm; color brownish; pronotum crossed by ten to eleven transverse, complete lines, narrower than pale areas, hemelytral pattern reticulose, membranes not separated from corium; strigil small, elongately shaped.

Distribution: Sailer (1948) gives as part of the species distribution Kansas and Texas.

Trichocorixa verticalis interiores Sailer

Trichocorixa verticalis interiores Sailer, 1948. Univ.
Kansas Sci. Bull. 32: 354.

Characteristics: Length 2.8-4.3 mm; color pale; pronotum crossed by six to eight irregular, faint transverse dark lines

which may be obscure at the margins, to as many as twelve heavy dark lines; hemelytral pattern coarsely reticulose, membranes not separate from corium; strigil small, elongately shaped.

Distribution: Kay County.

Gelastocoridae

The family Gelastocoridae has previously been known by the names Naucoridae Fallen, Galgulidae Billberg, Narthridae Kirkaldy and Mononychidae Horvath. Todd (1955) revised the family and placed the Oklahoma gelastocorid in the subfamily Gelastocorinae Champion.

Gelastocoris Kirkaldy

Galgulus Latreille, 1802 (not Brisson, 1760). Hist.

Natur. Crustaces Insects, 3: 253.

Gelastocoris Kirkaldy, 1897. Entomol. 30: 258.

Montandonius Melin, 1929. Zool. Bidrag Fran Uppsala, 12: 154.

Type species: Naucoris oculata Fabricius, 1798. Suppl. Entomol. Syst. p. 525.

This genus is sufficiently characterized by the family key; thus no further description is given.

Gelastocoris oculatus oculatus (Fabricius)

Naucoris oculata Fabricius, 1798. Suppl. Entomol. Syst. p. 525.

Galgulus oculatus: Latreille, 1802. Hist. Natur.

Crustaces Insects, 3: 254.

Gelastocoris oculatus: Kirkaldy, 1897. Entomol. 3: 258.

Gelastocoris barberi Torre-Bueno, 1923. Connecticut

Geol. Natur. Hist. Surv. Bull. 7(34): 393.

Gelastocoris subsimilis Blatchley, 1926. Heteroptera

E. N. Amer. p. 1025.

Gelastocoris californiensis Melin, 1929. Zool. Bidrag

Fran Uppsala, 12: 167.

Gelastocoris oculatus oculatus: Todd, 1955. Univ.

Kansas Sci. Bull. 37(11): 298.

Characteristics: Length 6.1-9.3 mm; color variable, generally dark, often obscured by debris; legs ringed with brown.

Distribution: Alfalfa, Atoka, Beaver, Caddo, Cleveland, Coal, Craig, Custer, Harper, Johnston, Kay, LeFlore, Marshall, Mayes, McCurtain, Murray, Muskogee, Noble, Okmulgee, Ottawa, Pawnee, Payne, Rogers, Sequoyah and Washington counties.

Gerridae

The family Gerridae, cosmopolitan in distribution, is represented in Oklahoma by three subfamilies: Gerrinae, two genera; Halobatinae, two genera; and Rhagadotarsinae, one genus. Papers important to our fauna are those of Drake and Harris (1932, 1935), Kuitert (1942), Hussey and Herring (1949), Drake and Chapman (1953a) and Hungerford (1954).

Characteristics: Body form narrow, elongate, widest behind pronotum; covered ventrally with short, dense hydrofuge hairs; head shorter than united pro and mesonota; hind margin of eyes touching pronotum; ocelli present, very small and obscure; legs long and slender; anterior pair of legs shorter, raptorially adapted; tarsi two-jointed; hemelytra often absent, apterous, when present may be macropterous or brachypterous.

Key to the Species

1. Eyes with inner margins sinuate or concave behind
 middle 2
 Eyes with inner margins convexly rounded 3
2. Pronotum dull, tarsal segments of foreleg subequal in
 length 5
 Pronotum glabrous, shiny; first tarsal segment of fore-
 leg much shorter than second . . . Limnogonus hesione
3. First antennal segment subequal to remaining three
 together Metrobates hesperius depilatus
 First antennal segment much shorter than remaining
 three together 4
4. Third antennal segment with several stiff bristles . 16
 Third antennal segment with fine pubescence only . . 18
5. Males 6
 Females 11

6. Venter singly emarginate at apex; connexival spines
very long, reaching to or slightly beyond middle
of last genital segment 7
- Venter doubly emarginate at apex, second emargination
forming a more or less distinct notch at middle;
connexival spines shorter or absent 8
7. Length 14-16 mm Gerris nebularis
Length 8-11 mm Gerris canaliculatus
8. Large robust species (11 mm or more); connexival
spines rather long and conical; first genital seg-
ment with very prominent, strongly elevated keel . 9
Smaller species (less than 11 mm); connexival spines
shorter, angular, first genital segment with keel
only moderately prominent or absent 10
9. Color brownish Gerris remigis
Color deep black Gerris nyctalis
10. First genital segment beneath with conspicuous long,
silvery hairs on each side Gerris comatus
First genital segment without long hairs
. Gerris marginatus
11. Large species, length 11 mm or more 12
Smaller species, length 10.8 or less 14
12. Connexival spines long, slender, curved in and upward,
as long as both genital segments . Gerris nebularis

- Connexival spines shorter, long as first genital
segment 13
13. Color brownish Gerris remigis
Color black Gerris nyctalis
14. Connexival spines extending to apices of first
genital segment 15
Connexival spines longer than both genital segments .
. Gerris canaliculatus
15. Connexival spines straight Gerris marginatus
Connexival spines incurved Gerris comatus
16. Metafemora of male without fine hairs, may have spine-
like hair cluster at apices 17
Metafemora of male with long hairs along inner mar-
gins Rheumatobates rileyi palosi
17. Mesofemora posteriorly with a row of long straight
hairs Rheumatobates hungerfordi
Mesofemora posteriorly hairless except for a few
apically Rheumatobates trulliger
18. Males 19
Females 22
19. Femora and basal portion of tibiae of middle legs clothed
within with a fringe of hairs whose length is sub-
equal to diameter of leg at point of origin . . . 20
Femora and basal portion of tibiae of middle legs clothed
within with a fringe of hairs whose length is

- shorter, $\frac{1}{2}$ diameter of the leg at point of origin , .
 Trepobates pictus
20. Third antennal segment with long hairs on basal, inner
 side 21
 Third antennal segment without long hairs on basal,
 inner side Trepobates subnitidus
21. First genital segment below with long, conspicuous
 brownish hairs Trepobates knighti
 First genital segment below with short, sparse inner
 hairs Trepobates inermis
22. Connexivum produced outward and upward at apex into
 long curved spines Trepobates knighti
 Connexivum not as above 23
23. Mesonotum in apterous form produced backward into a
 hornlike process Trepobates pictus
 Mesonotum in apterous form not produced, truncate . 24
24. Antennal segment 2 subequal to 3 . Trepobates subnitidus
 Antennal segment 2 distinctly shorter than 3
 Trepobates inermis

Gerris Fabricius

Gerris Fabricius, 1794. Entomol. Syst. 4: 187.

Aquarius Schellenberg, 1800. Geschlecht Land Wasser-
 wanzer Schweiz Familien Geordnet, p. 25.

Hydrometra Lamarck, 1801. Syst. Anim. Sans Vertebres,
p. 295. (In part.)

Hygratrechus Stal, 1868. Ofversigt Svenska Vet. Akad.
Forhandl. 25: 395.

Limnoporos Stal, 1868. Ibid.

Limnotrechus Stal, 1868. Ibid.

Type species: Cimex lacustris Linnaeus, 1758. Syst.
Natur. 10 Ed. p. 450.

Characteristics: Antennae usually reaching hind margin
of pronotum; rostrum reaching to or nearly to pro-mesosternal
suture; body subparallel.

Gerris canaliculatus Say

Gerris canaliculatus Say, 1832. Descriptions N. Sp.

Heteropterous Hemiptera N. Amer. p. 36.

Characteristics: Length 8.15-10.84 mm, width 1-1.25 mm;
color dark brown to black sometimes reddish, ventrally
yellowish brown; pronotum longitudinal carinate medial in
macropterous and apterous forms; antennal segment one
shorter than two and three together.

Distribution: Bryan, Cleveland, LeFlore, Marshall,
McCurtain and Pushmataha counties.

Gerris comatus Drake and Hottes

Gerris comatus Drake and Hottes, 1925. Ohio J. Sci. 25: 48.

Characteristics: Length 7.35-9.2 mm, width 2.3-2.8 mm; similar to G. marginatus separated by key characters.

Distribution: Cimarron and Texas counties.

Gerris marginatus Say

Gerris marginatus Say, 1832. Descriptions N. Sp.

Heteropterous Hemiptera N. Amer. p. 36.

Characteristics: Length 8.21-10.35 mm, width 2.32-2.55 mm; venter of male, notch at apex of sixth abdominal venter deep, broadly rounded.

Distribution: Beaver, Beckham, Bryan, Carter, Cleveland, Comanche, Craig, Custer, Delaware, Greer, Harper, Jefferson, Johnston, Latimer, Lincoln, Love, Marshall, Payne and Pontotoc counties.

Gerris nebularis Drake and Hottes

Gerris nebularis Drake and Hottes, 1925. Proc. Biol.

Soc. Washington, 3: 70.

Characteristics: Length 14-16 mm, width 2.35 mm; color dark brown to black, ventrally grayish; pronotum longitudinally carinate medially; antennal segment one subequal to or longer than two and three together.

Distribution: Alfalfa, Jefferson, Okmulgee, Pawnee and Payne counties.

Gerris nyctalis Drake and Hottes

Gerris nyctalis Drake and Hottes, 1925. Ohio J. Sci. 25: 47.

Characteristics: Length 11-13 mm, width 2.3-3.5 mm; color blackish; silvery patches on connexivals much smaller than in G. remigis; otherwise similar to G. remigis.

Distribution: Comanche County.

Gerris remigis Say

Gerris remigis Say, 1832. Descriptions N. Sp. Heteropterous Hemiptera N. Amer. p. 35.

Gerris orba Stal, 1859. Kongliga Svenska Fregattens Eugenies Jorden, 3: 264.

Hygrotrechus robusta Uhler, 1871. Amer. J. Sci. Ser. 3, I: 105.

Characteristics: Length 11.5-16 mm, width 3-4 mm; color variable, usually brownish-black, sometimes reddish-brown; ventrally grayish; antennal segment one subequal in length to two and three together; connexiva with prominent silvery or golden spots at junctions of the segments; anterior lobe of pronotum with a broad medial yellowish to red line.

Distribution: Adair, Alfalfa, Caddo, Cherokee, Cleveland, Comanche, Craig, Custer, Johnston, Kay, LeFlore, Major, Mayes, Murray, Noble, Ottawa, Pawnee, Payne, Pontotoc, Pushmataha, Texas and Woodward counties.

Limnogonus Stal

Limnogonus Stal, 1868. Kongliga Svenska Vet. Akad.

Handl. 7: 132.

Lamprotrechus Reuter, 1882. Ofversigt Finska Vet. Soc.

Forhandl. 25: 40.

Type species: Hydrometra hyalinus Fabricius, 1803.

Syst. Rhyngotorum, p. 258.

Limnogonus hesione (Kirkaldy)

Gerris hesione Kirkaldy, 1902. Entomol. 35: 137.

Tenagogonus hesione: Barber, 1914. Bull. Amer. Mus.

Natur. Hist. 32: 499.

Limnogonus hesione: Osborn and Drake, 1915. Ohio

Natur. 15: 503.

Characteristics: Length 4.5-7.9 mm, width 1.4-1.8 mm; color black, transverse pale spot at base of head; length of first antennal segment subequal to width of head through eyes; apex of abdomen not surpassing basal one-fifth of hind femora.

Distribution: Carter, Cleveland, Johnston and LeFlore counties.

Metrobates Uhler

Metrobates Uhler, 1871. Proc. Boston Soc. Natur. Hist.

14: 108.

Type species: Metrobates hesperius Uhler, 1871. Ibid.

Metrobates hesperius depilatus Hussey and Herring

Metrobates hesperius depilatus Hussey and Herring, 1949.

Florida Entomol. 32(4): 168.

Characteristics: Length 3-5 mm, greatest width 2-2.5 mm; color velvety black, clothed with a grayish bloom, except on vertex, a rusty red spot and only on a narrow medial strip down the meso and metanotum; pronotum with a medial yellow spot; mesofemora about 4 mm long.

Distribution: Adair, Cherokee, Johnston, LeFlore, Marshall, McCurtain and Pushmataha counties.

Rheumatobates Bergroth

Rheumatobates Bergroth, 1892. Insect Life, 4: 321.

Hymenobates Uhler, 1894. Proc. Zool. Soc. London, p. 214.

Halobatopsis Ashmead, 1897 (not Bianchi, 1896). Can.

Entomol. 29: 56.

Telmatobates Berg, 1898. Commun. Mus. Nat. Buenos

Aires, 1(1): 5.

Hynesia China, 1943. Proc. Royal Entomol. Soc. London, ser. B, 12(5-6): 71.

Type species: Rheumatobates rileyi Bergroth, 1892.

Insect Life, 4: 321.

Characteristics: Small water striders seldom over 3 mm

in length, apterous males 2.3-2.9 mm, winged males 3.57-3.9 mm, apterous females 2.6-3.36 mm, winged females 3.4-3.6 mm; vertex of head with a median longitudinal shining or depressed line; antennae of male strangely modified; femora and tibiae of hind legs of male strangely modified; genital segments in both sexes more or less cylindrical in dorsal view.

Rheumatobates hungerfordi Wiley

Rheumatobates hungerfordi Wiley, 1923. Can. Entomol.

55: 202.

Characteristics: Color velvety black, covered with a bluish-white bloom; head black, sometimes with a yellow band at base of vertex; pronotum with a yellow spot occupying entire length, in some specimens quadrate, others twice as wide as long with rounded sides, or disc entirely yellow; mesonotum with a large medial yellow spot of variable shape; winged forms only pronotal spot is visible; hemelytral base whitish, veins brown, distal half smoky; thoracic venter yellow, with brown band behind each front coxa, often mesosternum dark, abdominal venter brown.

Distribution: Cleveland, Craig, Love and Pontotoc counties.

Rheumatobates rileyi palosi Blatchley

Rheumatobates rileyi palosi Blatchley, 1926. Heter-

optera of E. N. Amer. p. 984.

Characteristics: Color velvety black; pronotal, mesonotal yellow spots of variable size or absent; ventrally pale.

Distribution: Jefferson, LeFlore, Love, Marshall, McCurtain and Payne counties.

Rheumatobates trulliger Bergroth

Rheumatobates trulliger Bergroth, 1915. Bull. Brooklyn

Entomol. Soc. 10: 63.

Characteristics: Color velvety black; vertex with yellow line at its base; pale spot on pronotum, may be narrow or broad covering most of disc, in apterous forms the pale spot variable to absent; thoracic venter pale with brown band behind each anterior coxa; abdominal venter smoky in females, brown to black in males.

Distribution: Adair, Delaware, LeFlore, McCurtain and Ottawa counties.

Trepobates Uhler

Stephania Buchanan-White, 1883 (not Peron and Lesueur, 1807). Challenger Rept. Zool. 7(19): 79.

Trepobates Uhler, 1894. Proc. Zool. Soc. London, p. 213.

Kallistometra Kirkaldy, 1902. Entomol. 35: 137.

Type species: Halobates pictus Herrich-Schaeffer, 1848. Wanzenartigen Insecten, 8: 111.

Characteristics: Length 3-4 mm, width 1.3-1.8 mm;

antennae reaching beyond middle of body, first segment slightly shorter than two and three conjoined, four slightly longer than three; mesofemora about 2 mm long.

Trepobates pictus (Herrich-Schaeffer)

Halobates pictus Herrich-Schaeffer, 1848. Wanzenartigen Insecten, 8: 111.

Stephania pictus: Buchanan-White, 1883. Challenger Rept. Zool. 7(19): 79.

Trepobates pictus: Uhler, 1894. Proc. Zool. Soc. London, p. 213.

Characteristics: Color and pattern variable, yellow markings usually predominant.

Drake and Chapman (1953) give distribution as east of Rocky Mountains.

Trepobates inermis Esaki

Trepobates inermis Esaki, 1926. Ann. Mus. Natur. Hist. 23: 140.

Characteristics: Second antennal segment distinctly shorter than third, third and fourth subequal; third antennal segment of male with long appressed hair on basal, ventral portion, connexiva in female not produced behind.

Distribution: McCurtain County.

Trepobates knighti Drake and Harris

Trepobates knighti Drake and Harris, 1928. Proc. Biol.

Soc. Washington, 41: 28.

Characteristics: Third antennal segment of male with long hair on basal inner side; connexivum of female produced outward and upward at apex into long curved spines.

Distribution: Bryan, Delaware, Johnston, LeFlore, Marshall, McCurtain, Muskogee, Pawnee, Payne, Pontotoc and Pushmataha counties.

Trepobates subnitidus Esaki

Trepobates subnitidus Esaki. Ann. Mus. Natur. Hist. 23: 141.

Characteristics: Second antennal segment subequal to third and to fourth, third segment of male antennae without extremely long hairs; middle femora and tibiae of male with long hairs on underside.

Distribution: Carter, Cleveland, Jefferson, Johnston, Marshall and McCurtain counties.

Hebridae

Literature helpful in dealing with the hebrids is Drake (1917), Drake and Harris (1943), Froeschner (1949) and Porter (1952). Schaefer and Drew (1964) listed two species of hebrids found in the state; three more species are added.

Characteristics: Body densely clothed with short velvety hydrofuge hairs; eyes large, coarsely granulated; ocelli present; beak usually reaching to or beyond hind coxae; pronotum broad, usually broader than abdomen, constricted in front of middle; hemelytra usually entire; clavus membraneous, membrane without veins; legs short, subequal, tarsi two-jointed, claws terminal.

Key to the Species

1. Antennae five segmented 2
 Antennae four segmented Merragata hebroides
2. Apex of scutellum angled, not or very feebly emarginate Hebrus sobrinus
 Apex of scutellum distinctly notched or bifid 3
3. Head above with deep, longitudinal groove which extends almost its entire length Hebrus buenoi
 Head above evenly convex or with only a vague impression of a medial groove 4
4. Hemelytra entirely covering apex of abdomen
 Hebrus burmeisteri
 Hemelytra not covering apex of abdomen Hebrus beameri

Hebrus Curtis

Hebrus Curtis, 1833. Entomol. Magazin. 1: 198.

Type species: Hebrus pusillus Fallen (Van Duzee, 1917).

Characteristics: Antennae five segmented.

Hebrus beameri Porter

Hebrus beameri Porter, 1952. J. Kansas Entomol. Soc.

25(1): 9.

Characteristics: Length 1.22-2.05 mm; apex of scutellum distinctly notched; hemelytra not covering apex of abdomen entirely.

Distribution: The type collection of this species is from Meade County State Park, Meade County, Kansas.

Hebrus buenoi Drake and Harris

Hebrus buenoi Drake and Harris. Notas Mus. Plata, 8: 43.

Characteristics: Length 2.1 mm; apex of scutellum distinctly notched; head with deep longitudinal groove.

Distribution: Payne County.

Hebrus burmeisteri Lethierry and Severin

Hebrus burmeister Lethierry and Severin, 1896. Cat. Gen.

Hemipteres, 3: 51.

Naeogaeus burmeisteri: Kirkaldy, 1908. Proc. Entomol.

Soc. Washington, 10: 214.

Characteristics: Length 1.8-2.1 mm; apex of scutellum distinctly notched; hemelytra covering abdomen entirely.

Distribution: Marshall County.

Hebrus sobrinus Uhler

Hebrus sobrinus Uhler, 1877. Bull. U. S. Geol. Geogr.

Surv. 3: 452.

Characteristics: Length 1.8-2.1 mm; apex of scutellum entire, not deeply notched; hemelytra covering entire abdomen.

Distribution: Beaver, Choctaw, Jefferson, Marshall, Payne and Pontotoc counties.

Merragata White

Merragata White, 1877. Ann. Magazin. Natur Hist. ser.

4, 20: 113.

Lipogomphus Berg, 1879. Nova Hemiptera Argentinae

Uruguayensis, p. 286.

Type species: Merragata hebroides White, 1877. Ann. Magazin. Natur. Hist. ser. 4, 20: 113.

Merragata hebroides White

Merragata hebroides White, 1877. Ann. Magazin. Natur.

Hist. ser. 4, 20: 113.

Merragata foveata Drake, 1917. Ohio J. Sci. 17: 103.

Characteristics: Length 1.6-2 mm; apical antennal segment fusiform; apex of scutellum truncate or slightly concave; hemelytra covering abdomen entirely.

Distribution: Beaver, Marshall and Texas counties.

Hydrometridae

The family Hydrometridae, known also as Limnobatidae Fieber, is represented in the Western Hemisphere by the genus Hydrometra Lamarck. Revisions of the family are those of Torre-Bueno (1926) and Hungerford and Evans (1934). Drake and Hottes (1952) added new synonyms of importance.

Hydrometra Lamarck

Hydrometra Latreille, 1796. *Precis Caracteres Gen.*

Insects, p. 86. (Nomen nudum)

Hydrometra Lamarck, 1801. *Syst. Anim. Sans Vertebres*,
p. 295.

Limnobates Burmeister, 1835. *Handb. Entomol.* 2: 210.

Type species: Cimex stagnorum Linnaeus, 1758. *Syst.*
Natur. Ed. 10, p. 450.

Characteristics: Body elongate; legs and antennae long and slender; head with the postocular conspicuously lengthened; the brachypterous wing condition appears to be typical, Fig. 17. The taxonomic character acetabulum refers to the cup-shaped structure in which the coxa articulates, Fig. 18 and 19. The male process on the sixth abdominal sternite appears as a darkened scleritized transverse ridge or tubercle on each side of that sternite.

Key to the Species

1. Pits on pro- and mesoacetabula four or more each . . 2

Pits on pro-and mesoacetabula normally two each,

Fig. 18 Hydrometra martini

2. Pits normally eight to ten Hydrometra wileyae

Pits normally four, Fig. 19 . . Hydrometra hungerfordi

Hydrometra hungerfordi Torre-Bueno

Hydrometra hungerfordi Torre-Bueno, 1926. Entomol.

Amer. 7: 107.

Hydrometra australis: Torre-Bueno, 1926. Ibid. p. 117.

Characteristics: Length 9-10.8 mm; male processes small pointed tubercles, close together near anterior margin of sixth sternite.

Distribution: Bryan, Creek, Jefferson, Love, McCurtain and Muskogee counties.

Hydrometra martini Kirkaldy

Hydrometra lineata Say, 1832 (not Eschscholty, 1822).

Descriptions N. Sp. Heteropterous Hemiptera N. Amer. p. 35.

Hydrometra martini Kirkaldy, 1900. Entomol. 33: 175.

Characteristics: Length 8.5-9.9 mm; brachypterous wings almost absent, appearing as very small vestigial scales under posterior edge of pronotum; male processes transversely

linear, elevated and pointed toward middle.

Distribution: Beaver, Bryan, Choctaw, Cleveland, Johnston, LeFlore, Love, Marshall, Mayes, McCurtain and Payne counties.

Hydrometra wileyae Hungerford

Hydrometra wileyae Hungerford, 1923. Can. Entomol. 55: 55.

Characteristics: Length 13.5-15 mm; brachypterous wings just passing anterior margin of second abdominal segment; male processes widely spaced pointed tubercles.

Distribution: Drake and Hottes (1952) give Kansas and Texas as part of the species distribution.

Mesoveliidae

Of the three nearctic species of Mesovelina Mulsant and Rey, two are known in Oklahoma. Mesovelina mulsanti White, the most common species, was placed in four subspecies by Jaczewski in 1930. After that time, a study of the variations within the subspecies was made, and they were found to be conspecific (Neering, 1954).

Mesovelina Mulsant and Rey

Mesovelina Mulsant and Rey, 1852. Ann. Soc. Linn. Lyon, p. 138.

Fieberia Jakowlef, 1874. Trudy Russk. Entomol. Obshtsh.

7: 32.

Type species: Mesovelgia furcata Mulsant and Rey, 1852.

Ann. Soc. Linn. Lyon, p. 139.

This genus is sufficiently characterized by the family key; thus no further description is given.

Key to the Species

1. Front and middle femora each with a row of black
spines on lower surface Mesovelgia mulsanti
- Front and middle femora without row of black spines
on lower surface Mesovelgia cryptophila

Mesovelgia cryptophila Hungerford

Mesovelgia cryptophila Hungerford, 1925. Ann. Ent. Soc.

Amer. 17: 454.

Characteristics: Length 2.1-2.8 mm; color yellowish brown, covered with gray pubescence; female lacks posteriorly projecting hook-like structures on first genital segment; male lacks two black tufts of setae on first genital segment.

Distribution: Bryan, Jefferson, Love, McCurtain and Payne counties.

Mesovelgia mulsanti White

Mesovelgia mulsanti White, 1879. Trans. Entomol. Soc.

London, p. 268.

Mesovelia bisignata Uhler, 1882. Standard Natur. Hist.

2: 274.

Mesovelia mulsanti bisignata Jaczewski, 1930. Ann. Mus.

Zool. Pol. 9(1): 7.

Mesovelia mulsanti meridionalis Jaczewski, 1930. Ibid. p. 6.

Mesovelia mulsanti caraiba Jaczewski, 1930. Ibid.

Mesovelia orientalis Kirkaldy, 1901. Ann. Mus. Civico

Genova 20(2): 808.

Characteristics: Length 2.5-4 mm; color yellowish green to green; female, first genital segment with two posteriorly projecting hooklike structures on venter; male with two variable sized black tufts of setae on first genital segmental venter.

Distribution: Beaver, Bryan, Choctaw, Delaware, Harper, Johnston, LeFlore, Love, Marshall, McCurtain, Payne, Pushmataha and Texas counties.

Naucoridae

The family Naucoridae is represented in Oklahoma by one species which belongs to the subfamily Naucorinae Stal.

LaRivers (1948) reviewed the genus Pelocoris Stal.

Pelocoris Stal

Pelocoris Stal, 1876. Kongliga Svenska Vet. Akad.

Handl. 14(5): 142.

Type species: Naucoris femoratus Palisot de Beauvois,
1805. Insectes Recueillis Afr. Amer. p. 237.

Pelocoris femoratus (Palisot de Beauvois)

Naucoris femoratus Palisot de Beauvois, 1805. Insectes
Recueillis Afr. Amer. p. 237.

Naucoris peoyi Guerin-Meneville, 1844. Iconographie Du
Regne Animal De B. Cuvier, pt. 7, p. 352.

Pelocoris femoratus, Stal, 1876. Kongliga Svenska Vet.
Akad. Handl. 14(5): 144.

Pelocoris biimpessus Montandon, 1898. Bull. Soc. Sci.
Bucarest-Roumaine, 7: 285.

Characteristics: Length 9-11.5 mm; color yellowish green;
head usually with median brown stripe, widening back on pro-
notum; hind lobe of pronotum whitish, with dark marks; con-
nexivals each with oblong brown spot on hind margin.

Distribution: Choctaw and McCurtain counties.

Nepidae

Two of the three nearctic genera of Nepidae are found in
this state. Hungerford (1922) revised the family. His paper
and Blatchley(1926) are the principal taxonomic works useful
in dealing with our fauna.

When pinning fresh material, one should wash debris from
the head and move the forelegs away from the ventral side of

the head to avoid obscuring the view of the antennae.

Key to the Species

1. Body flattened and elongate-oval Nepa apiculata
 Body rounded, linear and narrow 2
2. Second antennal joint simple, without a branch,
 Fig. 10 Ranatra kirkaldyi
 Second antennal joint branched, branch may be very
 short and stubby, Fig. 11 and 12 3
3. Lateral branch of second joint not over one-half length
 of third joint 4
 Lateral branch over one-half length of third joint . 5
4. Prosternum with single wide, deep longitudinal trough
 or groove, Fig. 13 Ranatra buenoi
 Prosternum without single trough but with two longi-
 tudinally impressed lines, Fig. 14 . . Ranatra nigra
5. Fore femora without subapical tooth, Fig. 16
 Ranatra australis
 Fore femora with subapical tooth, Fig. 15
 Ranatra fusca

Nepa Linnaeus

Nepa Linnaeus, 1758. Syst. Natur. 10 Ed. p. 440.

Type species: Nepa cinerea Linnaeus, 1758. Ibid.

Characteristics: Body elongate-oval flattened.

Nepa apiculata Uhler

Nepa apiculata Uhler, 1862. In Harris, Treatise

Insects Injurious Vegetation, 3 Ed. p. 12.

Characteristics: Length 18-20 mm; head inserted in median concavity of pronotum; fore femora swollen, grooved full length to receive curved tibiae and rigid one-jointed tarsi; hind femora with a groove.

Distribution: McCurtain County.

Ranatra Fabricius

Ranatra Fabricius, 1790. In Skrifter, Natur. Selskabet Kjobenhaven, 1: 227.

Type species: Nepa linearis Linnaeus, 1758. Syst. Natur. 10 Ed. p. 441.

Characteristics: Body elongate, rounded; front femora thickened at base, somewhat curved and narrowed toward apex, armed near middle with blunt spine, apical third grooved; fore tibiae and rigid single tarsi shorter than fore femora.

Ranatra australis Hungerford

Ranatra australis Hungerford, 1922. Univ. Kansas Sci. Bull. 14: 449.

Characteristics: Length of body 32-37 mm; fore femora and tibiae palely annulated with dark transverse bands;

scutellum with two pits; respiratory tubes as long as abdomen.

Distribution: Cleveland, Love, Marshall, Murray and Payne counties.

Ranatra buenoi Hungerford

Ranatra buenoi Hungerford, 1922. Univ. Kansas Sci.

Bull. 14: 430.

Characteristics: Length 32-38 mm; fore femora and tibiae concolorous, except in paler specimens palely annulated near apices of joints with dark transverse bands; scutellum with two pits.

Distribution: McCurtain, Payne and Pontotoc counties.

Ranatra fusca Palisot de Beauvois

Ranatra fusca Palisot de Beauvois, 1805. Insectes

Recueillis Afr. Amer. p. 235.

Characteristics: Length of body 35-42 mm; fore femora and tibiae not or faintly annulated with dark transverse bands; scutellum with two very shallow pits, divided by a prominent medial carina; respiratory tube shorter than abdomen.

Distribution: Mayes County.

Ranatra kirkaldyi Torre-Bueno

Ranatra kirkaldyi Torre-Bueno, 1905. Can. Entomol. 37: 187.

Characteristics: Length 23-30 mm; fore femora and tibiae

not or distinctly annulated in paler specimens, fore femora not narrowed beyond submedial spine; scutellum with two very shallow pits; respiratory tubes shorter than abdomen.

Distribution: Cleveland, McCurtain and Payne counties.

Ranatra nigra Herrich-Schaeffer

Ranatra nigra Herrich-Schaeffer, 1853. Wanzenartigen

Insecten, 9: 32.

Characteristics: Length 30-32 mm; fore femora and tibiae not annulated, fore femora long and slender, about as broad as fore coxae, narrowed at submedial spine; scutellum with two pits, respiratory tubes shorter than abdomen.

Distribution: Cleveland, Comanche, LeFlore, Marshall, Mayes, McCurtain, Oklahoma and Payne counties.

Notonectidae

Nearctic notonectids belong to two genera, Notonecta and Bueno, which have been monographed by Hungerford (1933) and Truxal (1953) respectively. Both genera are present in Oklahoma. Hungerford (1918 and 1919) found as useful diagnostic characters the genitalis and (1928) the size and shape of the mesotrochanter.

Characteristics: Adult notonectids are deep bodied, convex dorsally, more or less triangular in cross section; eyes large; ocelli absent; antennae hidden, three or four segments

rostrum conspicuous, four segments; fore and middle legs raptorially adapted, hind legs flattened and fringed with hairs for swimming; tarsi two or three segmented, two tarsal claws; scutellum hidden; abdominal venter with medial longitudinal keel.

Key to the Species

1. Hemelytral commissure without pit at anterior end . . 2
 Hemelytral commissure with hair-lined pit at anterior
 end, behind apex of scutellum 7
2. Color largely dark, nearly black, hemelytra flecked
 with brown and blue-black Notonecta irrorata
 Color largely pale, or reddish to orange, hemelytra
 may have transverse black band across corial-mem-
 brane union, not flecked as above 3
3. Mesotrochantal margin plainly angulate 4
 Mesotrochantal margin evenly rounded 5
4. Hemelytra reddish to orange with black transverse
 band Notonecta uhleri
 Hemelytra almost entirely pale Notonecta raleighi
5. Anterior width (ca. 1 mm) of vertex (as seen from
 above) less than length of vertex (1.5 mm)
 Notonecta indica
 Anterior width (ca. 1 mm) of vertex generally subequal
 or somewhat greater than length of vertex
 Notonecta undulata

6. Scutellum narrow, not as long as pronotum
 Buenoa confusa
 Scutellum broad, as long as pronotum 7
7. Stridulatory area of male inner femora with long conspicuous cross ridges, thirty or more, Fig. 21 . .
 Buenoa scimitra
 Stridulatory area of male inner femora with small oval cross ridges, fifteen or less, Fig. 20
 Buenoa margaritacea

Buenoa Kirkaldy

Buenoa Kirkaldy, 1904. Wiener Entomol. Zeit. 23: 120.

Type species: Ansiops antigone Kirkaldy, 1904. Entomol. 32: 30.

Characteristics: Length 4.16-8.25 mm; rostrum of male with third segment prolonged laterally into prongs which aid in stridulation; hemelytra generally hyaline, claspers of male genital capsule asymmetrical.

Buenoa confusa Truxal

Buenoa confusa Truxal, 1953. Univ. Kansas Sci. Bull.

25 (11): 1453.

Characteristics: Length 4.16-7 mm, greatest body width 1.3-1.62 mm; color generally whitish to pale testaceous; head, pronotum, scutellum, most of thoracic venter, limbs whitish

to testaceous; abdominal venter light brown to black except median keel and connexivum pale testaceous.

Distribution: Truxal (1953) gives as part of the species distribution Kansas and Texas.

Buenoa margaritacea Torre-Bueno

Anisops platycnemis Uhler, 1882 (not Fieber, 1851).

Standard Natur. Hist. 2: 253.

Bueno margaritacea Torre-Bueno, 1908. J. New York

Entomol. Soc. 16: 238.

Characteristics: Length 6.01-8.25 mm; greatest body width 1.-2.4 mm; color similar to B. scimitra, separated by key characters.

Distribution: Beaver, Grant, Harper, LeFlore, Marshall, Tillman and Woods counties.

Buenoa scimitra Bare

Buenoa scimitra Bare, 1925. Entomol. News, 36: 226.

Characteristics: Length 5.46-7.5 mm, greatest body width 1.56-2.15 mm; color generally whitish to fuscous; head, anterior portion of pronotum, most of thoracic venter, limbs white to testaceous; posterior portion of pronotum white to hyaline; scutellum orange to reddish yellow, often black margined, abdomen black except median keel and connexivum and dorsum testaceous. This species is very similar to B.

margaritacea, separated only by key characters.

Distribution: Cherokee, Marshall, McCurtain, Payne, Pushmataha and Tulsa counties.

Notonecta Linnaeus

Notonecta Linnaeus, 1758. Syst. Natur. 10 Ed. 439.

Type species: Notonecta glauca Linnaeus, 1758. Ibid.

Characteristics: Length 8-15.5 mm; claspers of male genital capsule symmetrical.

Notonecta indica Linnaeus

Notonecta indica Linnaeus, 1771. Mantissa Plantarum, 2: 534.

Notonecta americana Fabricius, 1775. Syst. Entomol. p. 690.

Notonecta variables var. scutellaris Fieber, 1851.

Rhynchotographieen, p. 477.

Notonecta pallipes Lethierry, 1881. Ann. Soc. Entomol.

Belg. 25: 13.

Notonecta undulata var. charon Kirkaldy, 1897. Trans.

Entomol. Soc. London, p. 411. (In part)

Notonecta howardii Torre-Bueno, 1905. J. New York

Entomol. Soc. 13: 151.

Characteristics: Length 10-11 mm, width of pronotum 3.36-3.75 mm; color variable, typical color as in N. undulata; transverse dark band across apex and broadly covering most of membrane; often insect nearly whitish, no concentrated dark

areas; terminal abdominal sternite of female notched shallowly or not at all. This species can be easily confused with N. undulata on color and structure.

Distribution: Cleveland, Latimer, Marshall, Mayes and Payne counties.

Notonecta irrorata Uhler

Notonecta irrorata Uhler, 1879. Proc. Boston Soc.

Natur. Hist. 19: 443.

Characteristics: Length 12.9-15.5 mm; width of pronotum 4.5-5 mm; vertex of head with anterior width equal to its length; interocular width one-third anterior width of vertex, one-third width of an eye; pronotum more than twice length of head; mesotrochanters nearly right angulate.

Distribution: LeFlore, McCurtain and Pushmataha counties.

Notonecta raleighi Torre-Bueno

Notonecta raleighi Torre-Bueno, 1907. Can. Entomol. 39: 225.

Characteristics: Length 8-8.9 mm, pronotal width 2.5-2.9 mm; vertex of head slightly longer than its anterior width; interocular width one-fifth anterior width of vertex; pronotum two- to four-tenths longer than head.

Distribution: McCurtain County.

Notonecta uhleri Kirkaldy

Notonecta uhleri Kirkaldy, 1897. Ann. Mag. Natur. Hist.
ser. 6, 20: 58.

Characteristics: Length 10-12 mm, width of pronotum
3.3-4 mm; vertex of head with anterior width less than
length; interocular width one-sixth or one-eighth anterior
width of vertex; pronotum longer than scutellum.

Distribution: McCurtain County.

Notonecta undulata Say

Notonecta undulata Say, 1832. Descriptions N. Sp.

Heteropterous Hemiptera N. Amer. p. 39.

Notonecta glauca Shephard, 1847 (not Linnaeus, 1758).

Sillimans Amer. J. 4(2): 423.

Notonecta punctata Fieber, 1851. Rhynchotographieen, 476.

Notonecta americana Herrick-Schaeffer, 1853 (not Fabri-
cius, 1775). Wanzenartigen Insecten, 9: 44.

Notonecta undulata var. charon Kirkaldy, 1897. Trans.

Entomol. Soc. London, p. 411. (In part)

Characteristics: Length 10.5-12.6 mm, pronotal width
3.6-4 mm; color variable, typical color--posterior portion of
pronotum and scutellum black, hemelytra white with undulate
narrow transverse black band across apex of corium and base of
membrane, most of membrane whitish; often body nearly all

whitish, no concentrated dark areas; terminal abdominal sternite of female notched at top, notch deeper than wide. This species can be easily confused with N. indica on color and structure.

Distribution: Alfalfa, Beaver, Beckham, Canadian, Cimarron, Cleveland, Custer, Garfield, Garvin, Harper, Kay, Latimer, Marshall, Noble, Osage, Ottawa, Pawnee, Payne, Pontotoc, Woods and Woodward counties.

Ochteridae

The family Ochteridae has often been referred to as Pelogoniidae Leach, but China and Miller (1959) retain the name Ochteridae because of its current usage. Schell (1943) states that Pelogonus Latreille was erected unnecessarily as a new name for Ochterus Latreille which Latreille thought would cause confusion with his Ochtera used earlier, 1802, in Diptera. Drake (1952) gives further distribution.

Ochterus Latreille

Ochterus Latreille, 1807. Genera Crustaceorum Insectorum, 3: 142.

Pelogonus Latreille, 1809. Ibid. 4: 384.

Type species: Ochterus marginatus Latreille, 1807.

Ibid., 3: 143.

Ochterus americanus (Uhler)

Pelogonus americanus Uhler, 1882. Standard Natur. Hist.

2: 262.

Ochterus americanus: Torre-Bueno and Brimley, 1907.

Entomol. News, 18: 433.

Characteristics: Length 4.5-5 mm; color bluish-black; behind humeral angles a variable sized yellow spot; costal margin of corium with five vague yellow spots; legs yellowish, tarsi darker.

Distribution: Marshall County.

Pleidae

In 1860 Fieber recognized the pleids as a distinct family, Van Duzee (1917). They were degraded to a notonectid subfamily by Kirkaldy, 1897, and in 1928 Esaki and China revived them to family status (Hungerford, 1933). In their review of Plea Esaki and China placed our two species in the subgenus Neoplea and gave an account of the variability in our species (Drake and Chapman, 1953b).

Plea Leach

Plea Leach, 1817. Trans. Linn. Soc. London, 12: 11.

Type species: Notonecta minutissima Fussl (Van Duzee, 1917).

Characteristics: Tarsal segments three, two, three on the pro-, meso-, metathoracic legs respectively; abdominal carinae on ventrals two through five; body length 1.8-2.3 mm.

Key to the Species

1. Colored with brownish markings Plea harnedi
 Colored uniformly brown to gray Plea striola

Plea harnedi Drake

Plea harnedi Drake, 1922. Ohio J. Sci. 22: 14.

Plea striola Ellis, 1950 (not Drake, 1922). Proc.
 Entomol. Washington, 52(22) 104.

Characteristics: Sufficiently characterized by key.

Distribution: McCurtain County.

Plea striola Fieber

Plea striola Fieber, 1844 Entomol. Monog. p. 18.

Characteristics: Sufficiently characterized by key.

Distribution: Marshall and Payne counties.

Salidae

Literature helpful in working with the salids is Blatchley (1926), Chapman (1962), Drake (1949), Drake and Hoberlandt (1951), Drake and Hottes (1950) and Wilson (1958). Schaefer and Drew (1964) reported Pentacora sphacelata (Uhler) from the

state, but the identification proved to be erroneous.

Saldula coxalis (Stal) and Micracanthia quadrimaculata (Champion) are added to the list.

Characteristics: Front of head almost vertical; ocelli present; compound eyes large; beak three-jointed, first joint shorter than second; antennae four-jointed; scutellum large, triangular, almost equilateral; hemelytra without cuneus; membrane with four or five long cells; legs slender, hind pair longest, coxae broad, fitted for leaping; tarsi three-jointed, first short, second and third usually subequal.

Key to the Species

1. Membrane of hemelytra with five closed cells 3
 Membrane of hemelytra with four closed cells 2
2. Veins of corium obsolete 4
 Veins of corium more or less distinct, median vein
 apically forked 5
3. Lateral margins of pronotum and elytra with row of
 very short erect setae Pentacora signoreti
 Lateral margins of pronotum and elytra without row
 of setae Pentacora ligata
4. Two transverse light yellow spots on costal area of
 hemelytral corium Micracanthia quadrimaculata
 Entire costal area of hemelytral corium light
 yellow Micracanthia humilis

5. Dorsal vestiture of thorax and hemelytra with many
 long, dark erect hairs 6
 Dorsal vestiture of thorax and hemelytra smooth or
 only short pubescence, sometimes oppressed 7
6. Length 6-6.3 mm Saldula confluenta
 Length 3.5-4.5 mm Saldula orbiculata
7. Pronotum with lateral margins yellowish
 Saldula coxalis
 Pronotum with lateral margins black 8
8. Length 6-8 mm Saldula lugubris
 Length 4-5.5 mm Saldula pallipes

Micracanthia Reuter

Micracanthia Reuter, 1912. Ofversigt Finska Vet. Soc.

Forhandl. 54(A)(12): 8.

Type species: Salda marginalis Fallen, 1814. Specimen
 Novan Hemiptera, 1814: 16.

Characteristics: Hemelytral corium lacking distinct
 veins, median vein not forked apically, membrane with four
 closed cells.

Micracanthia humilis (Say)

Acanthia humilis Say, 1832. Descriptions N. Sp. Heter-
 opterous Hemiptera N. Amer. p. 35.

Salda humilis Uhler, 1876. Bull. U. S. Geol. Geogr.

Surv. Territory, 1: 334.

Micracanthia humilis: Van Duzee, 1917. Univ. California
Pub. Tech. Bull. Entomol. 2: 446.

Characteristics: Length 3-3.7 mm; entire costal area of
corium light yellow.

Distribution: Atoka, Beaver, Cherokee, Coal, Johnston,
LeFlore, McCurtain and Payne counties.

Micracanthia quadrimaculata (Champion)

Salda quadrimaculata Champion, 1900. Biol. Centr.-
Amer. Rhynchota, 2: 342.

Micracanthia pusilla Van Duzee, 1914. San Diego Natur.
Hist. 11: 32.

Micracanthis quadrimaculata: Drake and Hottes, 1950.
Great Basin Natur. 10: 51.

Characteristics: Length 2.5-3 mm; two transverse light
yellow spots on costal area of corium; pubescence silvery.

Distribution: Payne County.

Pentacora Reuter

Pentacora Reuter, 1912. Ofversigt Finska Vet. Soc.
Forhandl. 54(A)(12): 7.

Type species: Salda signoreti Guerin, 1857. In Sagra
Hist. Isla Cuba, p. 401.

Characteristics: Hemelytral membrane with five elongate

equal cells.

Pentacora ligata (Say)

Acanthia ligata Say, 1832. Descriptions N. Sp. Heteropterous Hemiptera N. Amer. p. 34.

Salda variegata Provancher, 1872. Natur. Can. 4: 107.

Salda ligata: Uhler, 1876. Bull. U. S. Geol. Geogr. Survey Territory, 1: 333.

Pentacora ligata: Reuter, 1912. Ofversigt Finska Vet. Soc. Forhandl. 54(A)(12): 11.

Characteristics: Length 5.5-6.1 mm; color above black thickly clothed with grayish pubescence; narrow reflexed margins of pronotum and hemelytra, two small spots on hind margin of pronotum, four on scutellar margin, one on apical third of clavus and six or eight on corium and embolium, dull yellow; edges of yellow costal margin of hemelytra and yellow pronotal border dark; membrane dark brown; under surfaces black, hind margins of all abdominal segments pale yellow; legs dull yellow with black stripes.

Distribution: Cherokee, Comanche, Johnston, Latimer, Love, Muskogee, Osage, Payne and Sequoyah counties.

Pentacora signoreti (Guerin)

Salda signoreti Guerin, 1857. In Sagra Hist. Isla Cuba, p. 401.

Salda ornata Stal, 1862. Stettiner Entomol. Zeit. 23: 458.

Acanthis signoreti: Stal, 1873. Kongliga Svenska Vet.

Akad. Handl. 3: 148.

Pentacora signoreti: Reuter, 1912. Ofversigt Finska

Vet. Soc. Forhandl. 54(A)(12): 11.

Characteristics: Length 6.5-8.0 mm; color above yellow and black, black markings between eyes, middle and front of pronotum, small quadrate spot at middle and rounded spot, one on each humeral angle of hind pronotal lobe, scutellum except two spots near apex, clavus except a spot behind middle, three spots on embolium; under surface largely black; legs brownish; apical half of femora darker; tibiae with black setae.

Distribution: Alfalfa, Dewey and Marshall counties.

Saldula Van Duzee

Acanthis Reuter, 1914 (not Fabricius, 1775). Ofversigt

Finska Vet. Soc. Forhandl. 54(A): 8.

Saldula Van Duzee, 1914. Can. Entomol. 46(11): 387.

Type species: Cimex saltatorius Linnaeus, 1758. Syst. Natur. 10 Ed. p. 448.

Characteristics: Hemelytral corium distinct veins, median vein forked apically, membrane with four closed cells.

Saldula confluenta (Say)

Acanthia confluenta Say, 1832. Descriptions N. Sp.

Heteropterous Hemiptera N. Amer. P. 35.

Acanthis confluens: LeConte, 1859. In Say Complete

Writings, 1: 361.

Salda confluens: Uhler, 1877. Bull. U. S. Geol. Geogr.

Surv. 3: 433.

Saldula confluenta: Van Duzee, 1917. Univ. California

Pub. Tech. Bull. Entomol. 2: 442.

Characteristics: Length 6-6.3 mm; color generally dark; hemelytral costal margin with two transverse pale areas of width subequal to alternating dark areas, membrane with a few scattered pale spots; legs dull yellowish red, apices of joint darker.

Distribution: Choctaw and McCurtain counties.

Saldula orbiculata (Uhler)

Salda orbiculata Uhler, 1877. Bull. U. S. Geol. Geogr.

Surv. 3: 450.

Salda opacipennis Champion, 1900. Biol. Centr.-Amer.

Rhynchota, 2: 340.

Acanthia orbiculata: Reuter, 1912. Ofversigt Finska

Vet. Soc. Forhandl. 54(A)(12): 15.

Saldula orbiculata: Van Duzee, 1917. Univ. California

Pub. Tech. Bull. Entomol. 2: 442.

Saldula severini Harris, 1943. J. Kansas Entomol. Soc.

16: 132.

Characteristics: Length 3.5-4.5 mm; color black, clothed with erect hairs as in S. confluenta, also with fine yellowish pubescence; hemelytral costal area dull yellow except base and small spot at apex dark, corium and membrane dark, one dark spot at middle of corium and several vague bluish spots; legs dull yellow.

Distribution: Drake and Hoberlandt (1950) give distribution as east of Rocky Mountains.

Saldula coxalis (Stal)

Salda coxalis Stal, 1873. Kongliga Svenska Vet. Akad.

Handl. 11(2): 140.

Salda argentina Berg, 1879. Hemiptera Argentina, p. 293.

Acanthis coxalis: Kirkaldy and Torre-Bueno, 1908.

Proc. Entomol. Soc. Washington, 10: 176.

Saldula coxalis: Drake and Hoberlandt, 1950. Acta

Entomol. Mus. Nat. Pragae, 26: 7.

Characteristics: Length 3-3.6 mm; pronotal lateral margin with narrow pale stripe usually visible from both above and below. These stripes usually are terminated slightly before reaching the front and hind margins.

Distribution: Beaver and Marshall counties.

Saldula lugubris (Say)

Acanthis lugubris Say, 1832. Descriptions N. Sp.

Heteropterous Hemiptera, p. 34.

Salda major Provancher, 1872. Natur. Can. 4: 107.

Salda lugubris: Uhler, 1876. Bull. Geol. Geogr. Surv.
3: 442.

Salda deplanta Uhler, 1876. Ibid.

Saldula lugubris: Van Duzee, 1917. Univ. California
Pub. Tech. Bull. Entomol. 2: 445.

Characteristics: 6.5-8 mm; color dull blackish with
or without brownish or yellowish spots on hemelytra; pubes-
cence dense, moderately long, dark golden color.

Distribution: Choctaw County.

Saldula pallipes (Fabricius)

Acanthis pallipes Fabricius, 1794. Entomol. Syst.
4: 71.

Acanthis littoralis Schrank, 1801. Fauna Boica,
2: 63.

Acanthis striata Latreille, 1804. Hist. Natur.
Crustaces Insectes, 12: 243.

Lygaeus saltatorius Panzer, 1805. Fauna Insectorum
Germanicae, plate 92, fig. 13.

Cimex marginalis Turton, 1806. In Linnaeus Syst.
Natur. 13 Ed. p. 610.

Acanthis interstitialis Say, 1825. J. Acad. Natur.

Sci. Philadelphia, 4: 324.

Acanthis pallipes dimidiata Curtis, 1835. Brit.

Entomol. 12: 548.

Salda laticollis Reuter, 1875. Petites Nouv. Entomol.

1: 554.

Salda reperta Uhler, 1877. Bull. U. S. Geol. Geogr.

Surv. 3: 447.

Salda separata Uhler, 1878. Proc. Boston Soc. Natur.

Hist. 19: 432.

Salda pallipes luctuosa, Westhoff, 1880. Jahresber.

Westhoff. Prov. Ver. 8: 65.

Salda pallipes confluens Reuter, 1891. Acta Soc. Sci.

Fennicae, 23(4): 17.

Salda tropicalis Champion, 1900. Biol. Centr.-Amer.

Rhynchota, 2: 338.

Saldula pallipes: Van Duzee, 1917. Univ. California

Pub. Tech. Bull. Entomol. 2: 443.

Characteristics: Length 3.5-5.5 mm; color usually black, clothed with fine golden yellowish pubescence; hemelytra varying from predominately pale to black, intermediate forms with anterior transverse bands interrupted or obscured, legs dull yellow, often marked with vague brownish lines and dots.

Distribution: Alfalfa, Beaver, Craig, Harper, Hughes,

Love, Marshall, Mayes, McCurtain, Okmulgee, Osage, Payne
and Sequoyah counties.

Veliidae

The Veliidae are a family of small water striders.
Literature related to this group can be found in Bacon
(1956), Blatchley (1926), Drake and Hussey (1955) and
Usinger (1956).

Characteristics: Beak four jointed, reaching behind
front coxae, third joint longer than others united, ocelli
absent; antennae four jointed; hemelytra usually wanting;
hind femora not or but slightly surpassing abdomen.

Key to the Species

1. Apical tarsi of middle leg deeply cleft, plumose hairs
arising from base of cleft 3
- Apical tarsi of middle leg not cleft 2
2. Tarsal formula, fore legs three, middle legs three,
hind legs three 5
- Tarsal formula apparently one, two, two 6
3. Male, trochanter of foreleg with distinct spine; fe-
male, without transverse constriction at middle of
mesofemora but may appear dorso-ventrally flattened
. 4

- Male, trochanter of foreleg without spine, if a small
agglutinated group of hairs look like a spine as in
above then abdominal dorsum hairy; female with
transverse constriction at middle of mesofemora . . .
. Rhagovelia choreutes
4. Male, trochanter of hind leg with spines; female,
mesonotum enlarged, larger than metanotum
. Rhagovelia rivale
- Male, trochanter of hind leg with few small dark
spines; female, mesonotum smaller than metanotum .
. Rhagovelia knighti
5. Tarsi of middle leg with second joint longer than
third Velia brachialis
- Tarsi of middle leg with second and third joints
subequal Velia watsoni
6. Antennae longer than head and thorax combined
. Microvelia americana
- Antennae shorter than head and thorax combined . . . 7
7. Tibiae of hind leg of male curved
. Microvelia pulchella
- Tibiae of hind leg of male straight . Microvelia hinei

Microvelia Westwood

Microvelia Westwood, 1834. Ann. Soc. Entomol. France,

3: 647.

Velia (Microvelia) Westwood, 1834. Ibid. p. 648.

Veliomorpha Carlini, 1895. Ann. Mus. Genova, 25: 120.

Microvelia (Kirkaldya) Torre-Bueno, 1910. Can.

Entomol. 42(5): 186.

Picaultia Distant, 1913. Trans. Linnean Soc. London,

16: 161.

Type species: Microvelia pulchella Westwood, 1834.

Ann. Soc. Entomol. France, 3(2): plate 6.

Characteristics: Fourth antennal segment longest, first subequal to second and third; hemelytra, when present, entirely membraneous; fore tarsi two jointed, middle and hind each three jointed, basal tarsal joints very small.

Microvelia americana (Uhler)

Hebrus americana Uhler, 1882. Standard Natur. Hist.

2: 274.

Microvelia americana: Van Duzee, 1905. 20 Rept. New

York State Entomol. p. 550.

Rhagovelia americana: Torre-Bueno, 1908. J. New York

Entomol. Soc. 16: 233.

Microvelia (Kirkaldya) americana: Torre-Bueno, 1910.

Can. Entomol. 42: 186.

Characteristics: Length 2.1-2.4 mm; antennae longer

than head and thorax combined, segment one subequal to or longer than third, apterous forms with dorsal pubescence, abdominal dorsum with conspicuous patches of silvery-gray pubescence; mesonotum visible in apterous forms, Fig. 23.

Distribution: Adair, Beaver, Bryan, Carter, Delaware, Harper, Johnston, Latimer, LeFlore, Love, Marshall, Mayes, Muskogee, Pawnee, Payne and Pontotoc counties.

Microvelia pulchella Westwood

Microvelia pulchella Westwood, 1834. Ann. Soc.

Entomol. France, 3(2): plate 6.

Velia (Microvelia) pulchella: Westwood, 1834. Ibid.

3(3): 647.

Hydroessa pulchella: Herrich-Schaeffer, 1842. Wanzen-artigen Insecten, 6: 37.

Rhagovelia incerta Kirby, 1890. J. Linnean Soc. London Zool. 20: 548.

Microvelia robusta Uhler, 1894. Proc. Zool. Soc. London, p. 219.

Microvelia marginata: Uhler, 1894 (not Uhler, 1893). Ibid.

Microvelia incerta: Kirkaldy, 1899. Rev. Entomol. 18: 95.

Microvelia borealis Torre-Bueno, 1910. In Smith,

Insects New Jersey 3 Ed. p. 150.

Microvelia pulchella incerta: Drake and Hussey, 1955.

Florida Entomol. 38(3): 104.

Characteristics: Length 1.6-2.5 mm; antennae shorter than head and thorax combined; hind tibiae of male curved, female tibiae straight; mesonotum visible in apterous forms; patches of grayish abdominal pubescence.

Distribution: Choctaw, Comanche, Johnston, Marshall and McCurtain counties.

Microvelia hinei Drake

Microvelia hinei Drake, 1920. Ohio J. Sci. 20: 207.

Characteristics: Length 1.3-1.6 mm; antennae shorter than head and thorax combined, hind tibiae of male and female straight; mesonotum visible in apterous forms; abdominal patches of bluish-gray pubescence.

Distribution: Bryan, Choctaw, Marshall and McCurtain counties.

Rhagovelia Mayr

Rhagovelia Mayr, 1865. Verhandl. Zool.-Bot. Ges. Vien,

15: 445.

Baecula Stal, 1865. Hemiptera Afr. 3: 157.

Neovelgia White, 1879. J. Linn. Soc. London, 14: 487.

Trochopus Carpenter, 1898. Entomol. Monthly Magazin.
34: 78.

Type species: Velia nigricans Burmeister, 1835. Handb.
Entomol. 2: 212.

Characteristics: Antennae long, four jointed, first curved and longest; hemelytra entirely membraneous, apterous forms common, without trace of wing pads; anterior legs not prehensile, intermediate pair modified as swimming legs, apical tarsal joint split and furnished with retractable plumose hairs; all tarsi three jointed; posterior femora of male swollen, armed with spine beneath; abdominal dorsum of apterous female is abruptly narrowed after first three basal segments, connexiva reflexed for the last four apical segments; abdominal segments and genitalia symmetrical.

Rhagovelgia choreutes Hussey

Rhagovelgia choreutes Hussey, 1925. J. New York
Entomol. Soc. 33: 61.

Characteristics: Length apterous male 3.7 mm, winged male 4.22, apterous female 4 mm, winged female 4.5; intermediate femora of female transversely constricted at middle; trochanters of fore legs of male usually unarmed; dorsum of abdomen hairy.

Distribution: Johnston, Marshall, McCurtain, Murray and Pontotoc counties.

Rhagovelia knighti Drake and Harris

Rhagovelia knighti Drake and Harris, 1927. Proc. Biol.

Soc. Washington, 40: 133.

Characteristics: Length apterous male 3.6 mm, apterous female 3.7 mm, winged forms unknown according to Bacon (1956); intermediate femora of female without transverse constriction at middle; trochanters of male fore and hind legs armed with a spine; dorsum of male abdomen with median areas of each segment shining, Fig. 25.

Distribution: Cherokee, Delaware, LeFlore, Muskogee and Ottawa counties.

Rhagovelia rivale Torre-Bueno

Rhagovelia rivale Torre-Bueno, 1924. Trans. Amer.

Entomol. Soc. 50: 247.

Characteristics: Length apterous male 3.5 mm, winged male 3.8 mm, apterous female 4.3 mm, winged female 4.6 mm; intermediate femora of female without transverse constriction at middle; trochanters of male fore legs armed, hind legs unarmed; dorsum of male abdomen with only a few basal segments shining.

Distribution: Atoka and Ottawa counties.

Velia Latreille

Velia Latreille, 1804. Nouv. Dict. Hist. Natur.

24: 163.

Type species: Velia rivulorum Fabricius (Van Duzee, 1917).

Characteristics: Antennae long, slender, four jointed, first joint longest; hemelytra, when present, reaching to tip of abdomen, entirely membranous, fore tarsi with one long joint and two shorter basal ones.

Velia brachialis Stal

Velia brachialis Stal, 1860. Kongliga Svenska Vet.

Akad. Handl. 2(1): 82.

Characteristics: Length 5-5.5 mm; compound eyes imbedded in thorax; humeral angles of pronotum prominently rounded; hemelytra of corium of winged form differing from membrane by lack of pile; brachypterous form, hemelytra appear as short, narrow triangular white pads.

Distribution: Johnston, Marshall and Payne counties.

Velia watsoni Drake

Velia watsoni Drake, 1919. Florida Buggist, 3: 1.

Characteristics: Length 4-5 mm; compound eyes smaller, not appearing as if imbedded in thorax; tubercles on sides of pronotum very distinct; hind margin of pronotum with fringe of long hairs.

Distribution: Marshall and McCurtain counties.

LITERATURE CITED

- Bacon, John A. 1956. A taxonomic study of the genus Rhagovelia (Hemiptera-Veliidae) of the Western Hemisphere. Univ. Kansas Sci. Bull. 38: 695-913.
- Blatchley, Willis S. 1926. Heteroptera or true bugs of Eastern North America with special reference to the fauna of Indiana and Florida. Indianapolis, Natur. Publ. Co. 1116 pp.
- Chapman, Harold C. 1962. The Saldidae of Nevada (Hemiptera). Pan-Pacific Entomol. 38(3): 147-159.
- China, W. E., and N. C. E. Miller. 1959. Check-list and keys to the subfamilies of Hemiptera-Heteroptera. Bull. Brit. Mus. Natur. Hist. Entomol. 3: 1-45.
- Cummings, Carl. 1933. The giant water bugs (Belostomatidae-Hemiptera). Univ. Kansas Sci. Bull. 21: 197-219.
- DeCarlo, Jose A. 1938. Los Belostomidos Americanos (Hemiptera). Ann. Mus. Argentina Cienc. Nat. 39: 189-260.
- Drake, Carl J. 1917. A survey of the North American species of Merragata. Ohio J. Sci. 17: 101-105.
- _____. 1949. Some American Saldidae (Hemiptera). Psyche, 56: 187-194.
- _____. 1952. Concerning American Ochteridae (Hemiptera). Florida Entomol. 35: 72-75.
- _____ and H. C. Chapman. 1953a. A new species of Trepobates from Florida (Hemiptera, Gerridae). Florida Entomol. 36: 109-112.
- _____. 1953b. Preliminary report on the Pleidae

(Hemiptera) of the Americas. Proc. Biol. Soc. Washington, 66: 53-60.

Drake, Carl J., and Halbert M. Harris. 1932. A synopsis of the genus Metrobates Uhler (Hemiptera, Gerridae). Ann. Carnegie Mus. 21: 83-88.

_____. 1943. Notas sobre Hebrides del Hemisferio Occidental (Hemiptera). Notas Mus. de la Plata, 8: 41-58.

Drake, Carl J., and Ludvik Hoberlandt. 1951. Catalogue of genera and species of Saldidae (Hemiptera). Acta Entomol. Mus. Nat. Prague, 26(376): 1-12.

Drake, Carl J., and F. C. Hottes. 1950. Three new species of Saldidae (Hemiptera). Proc. Biol. Soc. Washington, 63: 177-181.

_____. 1952. Distributional and synonymical data and descriptions of two new Hydrometra (Hemiptera-Hydrometridae). J. Kansas Entomol. Soc. 25: 106-110.

Drake, Carl J., and R. F. Hussey. 1955. Concerning the genus Microvelia Westwood, with descriptions of two new species and a check-list of the American forms. Florida Entomol. 38: 95-115.

Edmonson, Walles T., ed. 1959. Fresh-water biology. Wiley, New York, 1248 pp.

Ewing, Margaret Steffens. 1964. Structure of littoral insect communities in a limiting environment, oil refinery effluent holding ponds. (Unpublished Master's thesis, Oklahoma State University.)

Froeschner, Richard C. 1949. Contributions to a synopsis of the Hemiptera of Missouri, part 4. Amer. Midland Natur. 42: 123-188.

Hungerford, Herbert B. 1918. Concerning the oviposition of Notonectae (Hemiptera). Entomol. News, 29: 241-245.

_____. 1919. The male genitalia as characters of specific value in certain Cryptocera (Hemiptera, Heteroptera). Univ. Kansas Sci. Bull. 11: 329-335.

- _____. 1922. The Nepidae in North America north of Mexico. Ibid. 14: 425-469.
- _____. 1928. Some recent studies in aquatic Hemiptera. Ann. Entomol. Soc. Amer. 21: 139-146.
- _____. 1933. The genus Notonecta of the world (Notonectidae, Hemiptera). Univ. Kansas Sci. Bull. 21: 5-195.
- _____. 1948. The Corixidae of the Western Hemisphere (Hemiptera). Ibid. 32: 1-288.
- _____. 1954. The genus Rheumatobates Bergroth (Hemiptera, Gerridae). Ibid. 36: 529-588.
- _____ and N. E. Evans, 1934. The Hydrometridae of the Hungarian National Museum and other studies in the family (Hemiptera). Ann. Mus. Nat. Hungary, 28: 31-112.
- Hussey, Roland F., and Jon L. Herring, 1949. Notes of the variation of the Metrobates of Florida (Hemiptera, Gerridae). Florida Entomol. 32(4): 166-170.
- Jaczewski, Tadeusz. 1930. Notes on the American species of the genus Mesovelgia Mulsanti. (Heteroptera, Mesovelidae). Ann. Mus. Zool. Polonica, 9: 3-12.
- Kiutert, Louis C. 1942. Gerrinae in University of Kansas collections. Univ. Kansas Sci. Bull. 28: 113-142.
- LaRivers, Ira. 1948. A new species of Pelocoris from Nevada, with notes on the genus in the United States (Hemiptera, Naucoridae). Ann. Entomol. Soc. Amer. 41: 371-376.
- Lauck, David R., and Arnold S. Menke. 1961. The higher classification of the Belostomatidae (Hemiptera). Ann. Entomol. Soc. Amer. 54: 644-657.
- Neering, Thomasine. 1954. Morphological variations in Mesovelgia mulsanti (Hemiptera, Mesovelgia). Univ. Kansas Sci. Bull. 36: 125-148.

- Pennak, R. W. 1953. Freshwater invertebrates of the United States. New York, Ronald Press, 769 pp.
- Porter, T. Wayne. 1952. Three new species of Hebridae (Hemiptera) from the Western Hemisphere. J. Kansas Entomol. Soc. 25(1): 9-11.
- Sailer, Reece I. 1948. The genus Trichocorixa (Corixidae, Hemiptera). Univ. Kansas Sci. Bull. 32: 289-407.
- Schaefer, Kurt F., and William A. Drew. Check list of aquatic and semiaquatic Hemiptera (Insecta) of Oklahoma. Southwestern Natur. 9(2): 99-101.
- Schell, Dorothydean U. 1943. The Ochteridae (Hemiptera) of the Western Hemisphere. J. Kansas Entomol. Soc. 16: 29-47.
- Todd, Edward L. 1955. A taxonomic revision of the family Gelastocoridae. Univ. Kansas Sci. Bull. 37: 277-475.
- Truxal, Fred S. 1953. A revision of the genus Buenoa. Ibid. 35: 1351-1523.
- Usinger, Robert L., ed. 1956. Aquatic insects of California with keys to the North American genera and California species. Berkeley, Univ. California Press, 598pp.
- Van Duzee, Edward P. 1917. Catalogue of the Hemiptera of America north of Mexico. Univ. California Publ. Entomol. 2: 1-902.
- Wilson, Clifton A. 1958. Aquatic and semiaquatic Hemiptera of Mississippi. Tulane Studies Zool. 6(3): 115-170.

PLATE I

Corixidae

Fig. 1. View of head and prothorax of a Sigara species showing rounded margin of the prothoracic lobe and the scent gland osteole.

Fig. 2. View of head and pronotum showing truncate prothoracic lobe.

Fig. 3. Wing of Trichocorixa kanza Sailer.

Fig. 4. Wing of T. calva (Say).

Fig. 5. Pala of male Graptocorixa abdominalis (Say).

Fig. 6. Pala of male Trichocorixa verticalis interiores Sailer.

Fig. 7. Pala of male Sigara pectenata (Abbott).

Fig. 8. Pala of male S. alternata (Say).

Fig. 9. Pala of male Corisella tarsalis (Fieber).

Nepidae

Fig. 10. Antenna of Ranatra kirkaldyi Torre-Bueno.

Fig. 11. Antenna of R. buenoi Hungerford.

Fig. 12. Antenna of R. australis Hungerford.

Fig. 13. Head and prosternum of R. buenoi Hungerford.

Fig. 14. Head and prosternum of R. nigra Herrich-Schaeffer.

Fig. 15. Fore leg of R. fusca Palisot de Beauvois.

Fig. 16. Fore leg of R. australis Hungerford.

Hydrometridae

Fig. 17. Dorsal view of Hydrometra species.

Fig. 18. Lateral thoracic view of H. martini Kirkaldy.

Fig. 19. Lateral thoracic view of H. hungerfordi Torre-Bueno.

Notonectidae

Fig. 20. Fore femur and tibia of male Buenoa margaritacea Torre-Bueno.

Fig. 21. Fore femur and tibia of male B. scimitra Bare.

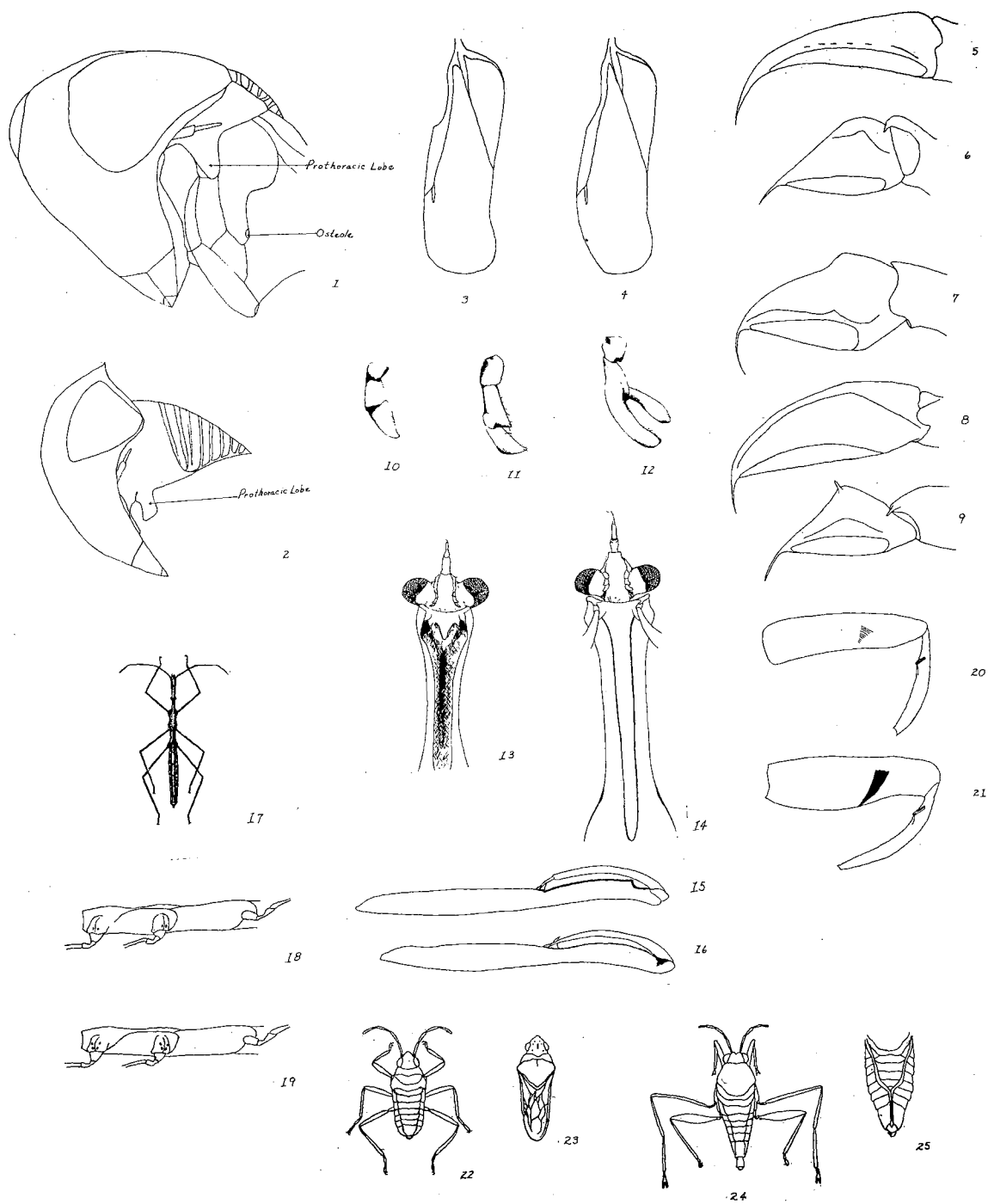
Veliidae

Fig. 22. Dorsal view of apterous female of Microvelia americana (Uhler).

Fig. 23. Dorsal view of winged M. americana (Uhler).

Fig. 24. Dorsal view of apterous male Rhagovelia choreutes Hussey.

Fig. 25. Dorsal view of abdomen of apterous female Rhagovelia knighti Drake and Harris.



INTRODUCTION

Among the Hemiptera of Oklahoma, the Lygaeidae rank second in numbers only to the family Miridae. They are principally phytophagous; however, some members of the subfamilies Rhyparochrominae and Geocorinae are noted as beneficial predators. The predatory forms usually have swollen front femora which are often armed beneath with teeth and spines. Only two species of this family are of detriment in Oklahoma; they are the chinch bug (Blissus leucopterus) and false chinch bug (Nysius ericae).

Important literature dealing with lygaeid taxonomy, relating to Oklahoma fauna, includes Blatchley (1926), Froeschner (1944), Slater (1964) and Torre-Bueno (1946). Slater's (1964) recent catalog of the world Lygaeidae updates the nomenclature, and his distribution lists indicate the possibility of more species being found in the state than indicated by Van Duzee's (1917) catalog, the synopsis of North American lygaeids by Torre-Bueno (1946) and Oklahoma museums' records. Ortenburger (1926) and Stoner et al (1962) give lists of lygaeids collected during their investigations in the state.

Except for subspecific designations of Blissus Leucop-
terus, Geocoris bullatus, G. pallens and G. uliginosus,
taxonomic arrangement follows Slater (1964). The taxa are
arranged alphabetically within subfamilies to facilitate
use. Most of the keys are modified from previously existing
ones in the general works listed above and simplified where
possible. No new taxa are presented; fifty-five specific
taxa in nine subfamilies are included, of which seventeen
are not presently recorded from the state.

SYSTEMATICS

Lygaeidae

Characteristics: Head subconical, convex above, porrect or feebly declivent, often inserted in thorax to compound eyes; antennae slender, four jointed, longer than head, inserted on sides of head slightly below middle of compound eyes; ocelli present, except in Cnemodus; beak four jointed; pronotum either horizontal or declivent in front, often more or less constricted to form two distinct lobes; scutellum triangular; hemelytral coriaceous usually entire or may be brachypterous; hemelytral claval commissure usually present; hemelytral membrane with four or five usually simple veins arising from the base; anterior femora often swollen and armed beneath with teeth or spines; tarsi three jointed; osteolar (scent gland) openings distinct; abdominal connexivum narrowly or not at all exposed.

Key to the Subfamilies

1. Sutures between ventral abdominal segments three and four usually curved anteriorly and not reaching lateral abdominal margins, Fig. 1 . Rhyparochrominae

- Sutures between ventral abdominal segments three and four as others, reaching lateral margins, Fig. 2 . 2
2. Pronotal hind margin in front of scutellum turned down convexly, Fig. 5; fore femora neither swollen nor spinose beneath 3
- Pronotal hind margin in front of scutellum not turned down; fore femora usually swollen and sometimes spinose beneath 6
3. Hemelytra and often entire upper surface impunctate . 4
- Hemelytra and upper surface except hemelytral membrane punctate 5
4. Hemelytral corium with apical costal margin straight; colors often black and reddish Lygaeinae
- Hemelytral corium with apical costal margin distinctly sinuate; colors not black and reddish . . Orsillinae
5. Hemelytral corium hyaline, no punctures along its middle; fourth antennal segment slightly longer than third Ischnorhynchinae
- Hemelytral corium opaque, punctate throughout; fourth antennal segment shorter than third Cyminae
6. All abdominal ventral segments with visible spiracles; anterior femora more or less swollen and armed with one or more spines 7
- Abdominal ventral segments one and two visible spiracles; anterior femora moderately swollen and

- unarmed 8
7. Fore femora strongly swollen and with rows of spines
beneath; hemelytra not extending over sides of
abdomen Pachygronthinae
- Fore femora but slightly swollen and with a single
spine beneath; hemelytra extending beyond sides of
abdomen Oxycareninae
8. Head narrower than posterior margin of pronotum;
hemelytral claval commissure at least half as long
as scutellum Blissinae
- Head wider than posterior margin of pronotum; hemely-
tral claval commissure very short or absent . Geocorinae

Blissinae

Characteristics: Head broader than long across compound eyes, narrower than hind pronotal margin; pronotum usually not distinctly constricted or impressed to form two lobes; hemelytra dimorphic in length, clavus not narrowing behind, commissure at least half the scutellar length; female with abdominal ventrals five and six overlapping and converging forward.

Key to the Species

1. Abdomen less than twice as long as head and pronotum
together 2

Abdomen more than twice as long as head and pronotum

together Ischnodemus falicus

2. Length more than 3.5 mm Blissus leucopterus

Length more than 3 mm Blissus nanus

Blissus Burmeister

Blissus Burmeister, 1835. Handb. Entomol. 2: 290.

Ischnodemus Lethierry and Severin, 1894 (not Fieber, 1837). Gen. Cat. Hemiptera, 2: 163.

Euhemerus Distant, 1909. Ann. Magazin. Natur. Hist. 8(3): 331.

Esmun Distant, 1909. Ibid. p. 330.

Characteristics: Head sloping downward, its width across eyes about one-half that of hind pronotal margin; antennae as long as head and thorax united, first joint exceeding apex of head; hemelytra either entire or in brachypterous forms only to third abdominal tergite.

Blissus leucopterus (Say)

Lygaeus leucopterus Say, 1831. Descriptions N. Sp.

Heteropterous Hemiptera N. Amer. p. 14.

Rhyparochromus devastator LeBaron, 1850. Prairie Farmer, 10: 280.

Rhyparochromus leucopterus: Harris, 1851. Insects Injures Agr. p. 198.

Blissus albipennis Dallas, 1852. List Hemiptera Brit.

Mus. 2: 583.

Micropus leucopterus: Fitch, 1855. The Cultivator,

3(3): 238.

Ischnodemus leucopterus Walker, 1872. Cat. Hemiptera

Heteroptera Brit. Mus. 5: 127.

Blissus leucopterus: Stal, 1874. Kongliga Svenska Vet.

Akad. Handl. 4: 133.

Characteristics: Length 3.67-4.2 mm; color black, thickly clothed with fine appressed pubescence; hemelytra milky white, veins tinged with yellow, apex of corium blackish, Fig. 12.

Distribution: Alfalfa, Cleveland, Grant, Noble, Okmulgee, Payne, Pontotoc, Washington and Woods counties.

Blissus nanus Barber

Blissus nanus Barber, 1937. Proc. Entomol. Soc.

Washington, 39: 82.

Characteristics: Length 2.8 mm; only brachypterous form is known; color black; head, anterior three-fourths of pronotum, basal half of scutellum grayish pruinose, sparsely covered with recumbent silvery white hairs, some long pilose hairs; posterior portion of pronotum velvety black; hemelytral corium whitish, often marked with brown; membrane white, hemelytra nearly twice as long as scutellum.

Distribution: Barber (1937) gives distribution as Kansas.

Ischnodemus Fieber

Ischnodemus Fieber, 1837. Beitr. Ges. Natur. Heilwessenschaft, 1: 337.

Micropus Spinola, 1837 (not Wolf, 1810.) Essai Gen. Insectes, p. 218.

Thops Gistel, 1848. Natur. Thierreichs Hohere Schulen, p. 10.

Blissus Stal, 1865 (not Burmeister, 1835). Hemiptera Afr. 2: 122.

Ischodemus (Staphylocoris) Stichel, 1958. Illustrierte Bestimmungstabellin Wanzen, 2(4): 103.

Type species: Ischnodemus quadratus Fieber, 1837. Beitr. Ges. Natur. Heilwessenschaft, 1: 337.

Characteristics: Body slender; antennae slightly longer than head and pronotum together, first joint longer than apex of head; pronotum with a more or less evident transverse impression; abdomen concave above, enclosing hemelytra; hemelytra entire or in brachypterous forms often scarcely longer than pronotum.

Ischnodemus falicus (Say)

Lygaeus falicus Say, 1831. Descriptions N. Sp. Heteropterous Hemiptera N. Amer. p. 15.

Micropus falicus: Signoret, 1857. Ann. Soc. Entomol. France, 3: 27.

Rhyparochromus punctatus Provancher, 1872. Natur. Can.
4: 76.

Ischnodemus falicus: Stal, 1874. Kongliga Svenska Vet.
Akad. Handl. 4: 131.

Characteristics: Length 4.2-5.3 mm; head, pronotum, scutellum and venter black, thickly clothed with fine pubescence; abdomen dark red, margins paler; hemelytral corium and membrane whitish with veins dark red; pronotum subquadrate, depressed above, sides rounded in front; hemelytra of macrop-
terous forms reaching sixth tergite.

Distribution: Payne County.

Cyminae

This subfamily is sufficiently characterized by the subfamily key.

Cymus Hahn

Cymus Hahn, 1831: Wanzenartigen Insecten, 1: 76.

Type species: Lygaeus claviculus Fallen, 1807. Mongr.
Cimicum Sueciae, 20: 64.

Characteristics: Head inserted in thorax almost to eyes; beak reaching mesocoxae; pronotum longer than wide, constricted near apex, coarsely, evenly punctate; hemelytral membrane relatively small, hyaline.

Cymus angustatus Stal

Cymus angustatus Stal, 1874. Kongliga Svenska Vet.

Akad. Handl. 4: 126.

Cymodema tabida Torre-Bueno, 1908 (not Spinola, 1837).

J. New York Entomol. Soc. 16: 229.

Characteristics: Length 3.8-4.2 mm; color pale brownish yellow; head, pronotum and scutellum often darker; apices of hemelytral clavus and corium dark brown; pronotal front margin as wide as interocular space.

Distribution: Delaware, LeFlore, McCurtain and Okmulgee counties.

Geocorinae

Characteristics: Head broader than long, compound eyes prominent, projecting backward and overlapping front of pronotum; antennae shorter than head and pronotum together, first segment not exceeding apex of head; beak reaching mesocoxae; pronotum not divided into distinct lobes; hemelytra of macropterous form entire, of brachypterous form not surpassing fifth abdominal tergite.

Key to the Species

1. Second joint of beak subequal to first joint 2

- Second joint of beak noticeably shorter than first
 joint 3
2. Hemelytral corium sparsely and irregularly punctate
 over entire disk Hypogeocoris piceus
 Hemelytral corial punctures in rows near clavus . . .
 Hypogeocoris imperialis
3. Head smooth, polished; a groove from apex of head
 extending back to vertex Geocoris punctipes
 Head granulose; groove at head apex not extended to
 vertex 4
4. Scutellum longer than wide, bicolored 5
 Scutellum nearly equilateral, usually concolorous . .
 Geocoris uliginosus
5. Upper surface depressed; pronotum little convex, some-
 times sunken in middle behind calli; scutellum not
 evenly and strongly convex, either low convex with
 median smooth raised line making it somewhat roof-
 shaped or sometimes elevated at or near base or
 with a Y-shaped raised area; ground color more gray-
 ish; length 2.75-4.5 mm Geocoris bullatus
 Upper surface more convex; pronotum rounded, sometimes
 subdepressed; scutellum very convex, evenly rounded
 median line usually scarcely elevated, or elevated
 Y-shaped area sometimes present
 Geocoris decoratus and pallens

Geocoris Fallen

Salda Fabricius, 1803 (nec vera). Syst. Phyngotorum,
p. 113.

Geocoris Fallen, 1814. Specimen Novan Hemiptera Dis-
ponendi Method. Exhibens, p. 10.

Ophthalmicus Schilling, 1829. Beitr. Entomol. 1: 37.

Type species: Cimex grylloides Linnaeus, 1761. Fauna
Suecica, p. 246.

Characteristics: Third and fourth antennal segments
subequal, second longer; compound eyes not obviously stalked,
their inner margins usually contiguous with front side
margins of pronotum.

Geocoris bullatus (Say)

Salda bullata Say, 1831. Descriptions N. Sp. Heterop-
terous Hemiptera N. Amer. p. 18.

Ophthalmicus griseus Dallas, 1852. List Hemiptera Brit.
Mus. 2: 585.

Geocoris griseus: Dohrn, 1859. Cat. Hemiptera, p. 35.

Geocoris bullatus: Stal, 1874. Kongliga Svenska Vet.
Akad. Handl. 4: 136.

Ophthalmicus bullatus Glover, 1876. Manuscript Notes
J. Illustrations Insects Native Foreign Hemiptera
Heteroptera, p. 55.

Geocoris bullatus bullatus: Hussey, 1922. Occasional

Papers Mus. Zool. Univ. Michigan, 118: 21.

Characteristics: Length 2.75-4.5 mm; color grayish, some yellow; head between eyes, base of scutellum and two spots on hind margin of hemelytral corium blackish; pronotum with two prominent smooth yellow calli on apical third; head, pronotum, scutellum sparsely evenly punctate.

Distribution: McCurtain and Payne counties.

Geocoris decoratus Uhler

Geocoris decoratus Uhler, 1877. Bull. U. S. Geol.

Geogr. Surv. Territory, 3: 410.

Geocoris pallens decoratus: Van Duzee, 1917. Checklist

Hemiptera N. Amer. p. 20.

Characteristics: Length 3-4 mm; head, most of pronotum except pale margins, and scutellum except two marginal pale spots dark brown to black; hemelytra entirely pale; pronotum often much lighter than described above.

The above description is modified from McAtee (1914) to help the reader differentiate between this species and G. pallens. With our limited number of specimens, I have been unable to differentiate these species. They were considered synonymous until Barber (1949) said that G. decoratus was not a synonym of G. pallens, but his description of G. pallens lacks any structural difference, and since the color pattern

of the genus is generally highly variable, one cannot safely distinguish the two. Drs. H. Harris and R. Sailer have identified specimens for our museum, the former as both questioned species, the latter as G. pallens; all identified specimens appear to be conspecific. Slater's (1964) distribution list for each species places Oklahoma near their eastern boundary.

Geocoris pallens Stal

Geocoris pallens Stal, 1854. Ofversigt Finska Vet. Soc. Forhandl. 11: 236.

Ninyas pallens: Gillette and Baker, 1895. Bull. Colorado Agr. Exp. Sta. 31: 23.

Characteristics: Length 3-4 mm; pronotum often medially dark, calli with a central pale spot.

The above description is modified from Barber (1949). The reader should note the discussion of G. decoratus concerning the uncertainty of these two species in Oklahoma.

Geocoris punctipes (Say)

Salda bullata var. punctipes Say, 1831. Descriptions

N. Sp. Heteropterous Hemiptera N. Amer. p. 19.

Ophthalmicus luniger Fieber, 1861. Wien. Entomol. Monatsh. 5: 268.

Ophthalmicus punctipes: Glover, 1876. Manuscript Notes J. Illustrations Insects Native Foreign Hemiptera, p. 55.

Geocoris punctipes: Uhler, 1876. Bull. U. S. Geol.

Geogr. Surv. Territory, 1: 306.

Peritrechus luniger: Riley, 1888 (not Schilling, 1829).

Insect Life, 1(5): 130.

Hypogeocoris punctipes: Montandon, 1913. Bull. Acad.

Roumaine Bucarest, 2: 55.

Characteristics: Length 3.5-5 mm; color grayish yellow; head between eyes, a curved mark on each side of apical third of pronotum and basal and medial portion of scutellum usually in great part dark brown; front of head, a spot on each side of scutellum and remainder of pronotal disc yellowish.

Distribution: Delaware, McCurtain and Payne counties.

Geocoris uliginosus (Say)

Salda uliginosus Say, 1831: Descriptions N. Sp. Heteropterous Hemiptera N. Amer. p. 19.

Ophthalmicus niger Dallas, 1852. List Hemiptera Brit. Mus. 2: 586.

Geocoris niger: Dohrn, 1859. Cat. Hemiptera, p. 35.

Ophthalmicus uliginosus: Rathvon, 1869. In Mombert, Hist. Lancaster County Pennsylvania, p. 549.

Geocoris uliginosus: Stal, 1874. Kongliga Svenska Vet. Akad. Handl. 4: 136.

Geocoris ater Lethierry and Severin, 1894 (not Fabricius, 1787). Gen. Cat. Hemiptera, 2: 169.

Characteristics: Length 3-4 mm; color shining black, hemelytral membrane hyaline. Several color varieties have been named, but as yet only the typical form has been collected in the state. The other forms may have either pronotum or hemelytral margin or both with yellow. No further differentiation is made here; Blatchley (1926) gives a key to the color varieties.

Distribution: Payne County.

Hypogeocoris Montandon

Hypogeocoris Montandon, 1913. Bull. Acad. Roumaine, 2: 55.

Isthmorocis McAtee, 1914. Proc. Biol. Soc. Washington, 27: 127.

Type species: Germalus violaceus Signoret, 1881. Ann. Soc. Entomol. France, 6(1): 50.

Characteristics: Head smooth, second and fourth antennal joints subequal; first joint of beak equal to or shorter than second; eyes obviously stalked, not in contact with front side of pronotum.

Hypogeocoris imperialis (Distant)

Geocoris imperialis Distant, 1882. Biol. Centr. Amer.

Heteroptera, 1: 197.

Germalus imperialis: Montandon, 1907. Ann. Mus. Natur.

Hist. Hungary, 5: 90.

Hypogeocoris imperialis: Montandon, 1913. Bull. Acad.

Roumaine, 2: 55.

Isthmocoris imperialis: McAtee, 1914. Proc. Biol. Soc.

Washington, 27: 127.

Characteristics: Length 3.5-4 mm; color yellowish orange and black; head, anterior two-thirds of pronotum, hemelytral clavus and corium yellowish orange; basal portion of pronotum, scutellum black; front margin, hind lobe of pronotum, and three rows on hemelytral clavus with punctures.

Distribution: Coal County.

Hypogeocoris piceus (Say)

Salda picea Say, 1831. Descriptions N. Sp. Heteropterous Hemiptera N. Amer. p. 18.

Ophthalmicus picea: Glover, 1876. Manuscript Notes J.

Illustrations Insects Native Foreign Hemiptera, p. 55.

Geocoris piceus: Uhler, 1876. Bull. U. S. Geol. Geogr.

Surv. Territory, 1: 307.

Germalus piceus Montandon, 1907. Ann. Mus. Natur. Hist.

Hungary, 5: 90.

Hypogeocoris piceus: Montandon, 1913. Bull. Acad.

Roumaine, 2: 55.

Isthmocoris piceus McAtee, 1914. Proc. Biol. Soc.

Washington, 27: 127.

Characteristics: Length 4-4.2 mm; color shining black;

head, base of first, apex of third and usually fourth antennal segments, beak and legs reddish yellow or reddish brown; hemelytral corium sparsely and irregularly punctate.

Distribution: Slater (1964) distribution as Colorado, Kansas, Missouri and New Mexico.

Ischnorhynchinae

This subfamily is sufficiently characterized by the subfamily key.

Kleidocerys Stephens

Kleidocerys Stephens, 1829. Syst. Cat. Brit. Insectes, 2: 342.

Cymus Burmeister, 1835. Handl. Entomol. 2: 292. (In part)

Cymus (Lyctus) Flor, 1860 Arch. Natur. Livlands Ehst. Kurlands, 2: 294.

Ischnorhynchus Fieber, 1860. Europe. Hemiptera, p. 51.

Schnorhipicus Ragues, 1914. Inst. Segunda Ensenanza Habana, p. 98.

Type species: Lygaeus resedae Pänzer, 1797. Faunae Insectorum Germanicae Deut. Insecten Hemiptera, 40: 20.

Characteristics: Antennae longer than head and pronotum, joints two and three slender, four stouter, fusiform; beak reaching second abdominal sternite; pronotum bell-shaped, constricted near apex; hemelytral clavi with sides parallel;

hemelytra entire.

Barber (1953a) revised this genus.

Kleidocerys resedae geminatus (Say)

Lygaeus geminatus Say, 1831. Descriptions N. Sp. Heteropterous Hemiptera N. Amer. p. 774.

Ischnorhynchus didymus Stal, 1874 (not Zetterstedt, 1819. Kongliga Svenska Vet. Akad. Handl. 4: 124.

Ischnorhynchus resedae Distant, 1882 (not Panzer, 1797). Biol. Centr.-Amer. Heteroptera, 1: 193.

Ischnorhynchus geminatus: Horvath, 1908. Ann. Mus. Natur. Hist. Hungary, 6: 560.

Kleidocerys geminatus: Torre-Bueno, 1910. J. New York Entomol. Soc. 18: 28.

Kleidocerys resedae geminatus: Barber, 1953. Proc. Entomol. Soc. Washington, 55: 276.

Characteristics: Length 4-5 mm; color dull yellow, first and fourth antennal joints, front pronotal margin, hind pronotal margin and a V-shaped marking of disk black; punctures on head, pronotum, scutellum and three rows each on hemelytral corium and clavus; membrane hyaline.

Distribution: Alfalfa County.

Lygaeinae

Characteristics: Base of pronotum in front of scutellum

impressed or depressed; hemelytra impunctate, membrane with two inner veins united near base by a transverse vein.

Key to the Species

1. Posterior pronotal margin before scutellum sinuate;
 carinate anteriorly in the middle, Fig. 5 and 6 . .
 Oncopeltus (Erythriscius) fasciatus
 Posterior pronotal margin truncate, without median
 carina, or carina not reaching anterior margin . . 2
2. Pronotum black, with a postmedian transverse red band
 or three red spots, remote from posterior margin;
 length greater than 10 mm 3
 Pronotum without a postmedian transverse red band;
 length less than 10 mm 6
3. Head with an anteriorly Y-shaped red mark, its arms
 extending between antennal bases and compound
 eyes, Fig. 9 Lygaeus turcicus
 Head with red spot of various size but not Y-shaped . . 4
4. Hemelytral clavus entirely black 5
 Hemelytral clavus anteriorly red . . Lygaeus reclivatus
5. Hemelytral membrane with two white spots and a broad
 white margin Lygaeus kalmii kalmii
 Hemelytral membrane without white spots, or with very
 small ones, and a narrow white margin
 Lygaeus kalmii angustomarginatus

6. Length 5 mm or less 7
 Length over 5 mm 8
7. Hemelytral membrane dark brown, pale margined, with a
 cleancut transverse median white spot, often pro-
 longed and continuous to the middle of the base of
 membrane Lygaeospilus pusio
 Hemelytral membrane dark brown, variegated white,
 discal spot more or less confused with pale variega-
 tions, not pale margined, a pale triangle at outer
 basal angles Lygaeospilus tripunctatus
8. Posterior pronotal lobe, hemelytral corium, venter
 except genital segments, and small vittae, red,
 Fig. 7 Melanocoryphus bicrucis
 Posterior pronotal lobe, hemelytral corium, clavus,
 and venter entirely brown 9
9. Hemelytral costal margin red . Melanocoryphus lateralis
 Hemelytral costal margin, commissural and inner claval
 margins red Melanocoryphus admirabilis

Lygaeospilus Barber

Lygaeus (Lygaeospilus) Barber, 1921. Proc. Entomol.

Soc. Washington, 23: 65.

Lygaeospilus: Barber, 1948. Ohio J. Sci. 48: 67.

Type species: Aphanus tripunctatus Dallas, 1852. List

Hemiptera Brit. Mus. 2: 559.

Characteristics: Upper surface with short decumbent, grayish pubescence; hemelytral membrane with a whitish discal spot or variegated with white.

Lygaeospilus pusio (Stal)

Melanocaryphus pusio Stal, 1874. Kongliga Svenska Vet.

Akad. Handl. 4: 112.

Lygaeus albulus Distant, 1893. Biol. Centr.-Amer.

Heteroptera Supple. 1: 380.

Lygaeospilus solida Uhler, 1893. Hemiptera Heteroptera

Death Valley Exp. N. Amer. Fauna, 7: 262.

Lygaeus albulus: Van Duzee, 1909. Bull. Buffalo Soc.

Natur. Sci. 9: 165.

Lygaeus (Melanopleurus) albulus: Van Duzee, 1917.

Checklist Hemiptera Amer. N. Mexico, p. 18.

Lygaeus (Melanopleurus) pusio: Van Duzee, 1917. Ibid.

Lygaeus (Lygaeospilus) pusio: Barber, 1921. Proc. Entomol.

Soc. Washington, 23: 65.

Lygaeospilus pusio: Slater, 1964. Cat. Lygaeidae World,

p. 74.

Characteristics: Length 4.5 mm; beak reaching behind mesocoxae; pronotal humeri tubercular; hemelytra red, more or less infuscated; venter dark brown sometimes margined with red.

Distribution: Payne County.

Lygaeospilus tripunctatus (Dallas)

Aphanus tripunctatus Dallas, 1852. List Hemiptera Brit. Mus. 2: 559.

Melanocoryphus (Melanocoryphus) obscuripennis Stal, 1874. Kongliga Svenska Vet. Akad. Handl. 4: 112.

Lygaeosoma tripunctata Distant, 1901. Ann. Natur. Hist. 8(7): 464.

Lygaeosoma parvula Uhler, 1902. Entomol. News, 13: 12 manuscript name.

Lygaeus albulus Barber, 1914 (not Distant, 1893). Bull. Amer. Mus. Natur. Hist. 33(31): 509.

Lygaeus (Melanocoryphus) obscuripennis: Van Duzee, 1917. List Hemiptera N. Amer. p. 18.

Rhyparochromus tripunctatus: Van Duzee, 1917. Ibid. p. 22.

Lygaeus (Lygaeospilus) tripunctatus: Barber, 1921. Proc. Entomol. Soc. Washington, 23: 65.

Lygaeus tripunctatus Barber, 1923. Hemiptera Connecticut, p. 713.

Lygaeospilus tripunctatus: Slater, 1964. Cat. Lygaeidae World, p. 74.

Characteristics: Length 3.5-4.5 mm; pronotum with front margin and small spot on hind angles and middle brownish yellow; hemelytral costal margin of corium reddish brown; pronotum punctate at middle and behind front margin; scutel-

lum with transverse ridge low.

Distribution: Slater (1964) gives Missouri, New Mexico and Texas.

Lygaeus Fabricius

Lygaeus Fabricius, 1794. Entomol. Syst. 4: 133.

Lygaeus (Graptolomus) Stal, 1868. Kongliga Svenska Vet.

Akad. Handl. 1: 73.

Eulygaeus Puton, 1886. Cat. Palearctic Hemiptera, p. 20.

Spilosthethus Reuter, 1912 (not Stal, 1868). Ofversigt

Finska Vet. Soc. Forhandl. 54: 19.

Graptolomus: China, 1943. Generic Names Brit. Insects

Hemiptera, 8: 236.

Type species: Cimex equestris Linnaeus, 1758. Syst.

Natur. 10 Ed. p. 447.

Characteristics: Beak reaching to or beyond middle coxae; pronotum more or less punctate, transversely impressed near middle, hind lobe usually with an evident carina; scutellum depressed with a longitudinal median carina; hemelytra entire.

Lygaeus kalmii Stal

This common species has been taken in thirty counties in this state. Parshley (1919) established two subspecies, one found in eastern United States and the other a western form. Oklahoma is in the zone of intergradation between the two

forms. In the past there has been some controversy about their validity; see Blatchley (1926), Froeschner (1944), Parshley (1923), Simanton and Andre (1936) and Slater (1952). The arrangement followed here is that of Slater (1952) who accepts Parshley's arrangement.

Distribution: The following counties are included on our museum records, but no specimens are available so their subspecific identity is unknown. The remaining counties represented by specimens are listed under their respective subspecies.

Cherokee, Craig, Creek, Delaware, Garvin, Grant, Harper, Lincoln, Love, McIntosh, Noble, Oklahoma, Okmulgee, Osage, Pittsburg, Washington, Woods and Woodward counties.

Lygaeus kalmii kalmii Stal

Lygaeus (Graptolomus) kalmii Stal, 1874. Kongliga

Svenska Vet. Akad. Handl. 4: 107.

Lygaeus rectivatus Uhler, 1876 (not Say, 1825). Bull.

U. S. Geol. Geogr. Surv. Territory, 1: 302.

Lygaeus turcicus Uhler, 1876 (not Fabricius, 1803). Ibid.

Lygaeus kalmii Uhler, 1876. Ibid.

Lygaeus kalmii kalmii: Parshley, 1919. Occasional Papers

Mus. Zool. Univ. Michigan, 71: 14.

Characteristics: Length 10-12 mm; color pattern similar to L. k. angustomarginatus except for the presence of two

white spots on middle area of membrane and a broad white membranal margin.

Distribution: Alfalfa, Beaver, Cimarron, Cleveland, Comanche, Ellis, Grady, Payne and Texas counties.

Lygaeus kalmii angustomarginatus Parshley

Lygaeus turcicus Harris, 1835 (not Fabricius, 1803).

In Hitchcock, Insects Geol. Mineral. Bot. Zool.

Massachusetts, p. 577.

Lygaeus reclivatus Rathvon, 1869 (not Say, 1825). In

Mombert, Hist. Lancaster County Pennsylvania, p. 549.

Lygaeus (Graptolomus) kalmii Stal, 1874. Kongliga

Svenska Vet. Akad. Handl. 4: 107.

Lygaeus kalmii Uhler, 1876. Bull. Geol. Geogr. Surv.

Territory, 1: 302.

Lygaeus kalmii angustomarginatus Parshley, 1919.

Occasional Papers Mus. Zool. Univ. Michigan, 71: 14.

Characteristics: Length 10-12 mm; color black and dull red; red spot on head confined to vertex; hemelytral clavus black, membrane black with narrow white costal margin, corium black with inner margins banded with red, appearing as an X-shaped red marking; pronotal hind lobe largely red, front lobe and apical margin black, head except vertex, thorax except transverse red band black; abdomen red except last two apical segments and two rows of black spots on each side.

Distribution: Beaver, Cleveland, McCurtain, Payne, Pontotoc, Pushmataha and Texas counties.

Lygaeus reclivatus Say

Lygaeus reclivatus Say, 1825. J. Acad. Natur. Sci.

Philadelphia, 4: 321.

Lygaeus bipunctulus Herrich-Schaeffer, 1850. Wanzen-artigen Insecten, 9: 195.

Lygaeus (Graptolomus) reclivatus Stal, 1874. Kongliga Svenska Vet. Akad. Handl. 4: 107.

Lygaeus (Graptolomus) bipunctulus Stal, 1874. Ibid. p. 108.

Lygaeus turcicus reclivatus Caudell, 1902. Proc.

Entomol. Soc. Washington, 5: 82.

Characteristics: Length 11 mm; color similar to L. kalmii angustomarginatus, except with anterior margin of hemelytral clavus red; discal spots as in L. k. kalmii or absent.

Distribution: Slater (1964) gives distribution as Colorado, Kansas, Missouri, New Mexico and Texas.

Lygaeus turcicus Fabricius

Lygaeus turcicus Fabricius, 1803. Syst. Rhyngotorum, p. 218.

Lygaeus trimaculatus Dallas, 1852. List Hemiptera Brit. Mus. 2: 542.

Lygaeus (Graptolomus) turcicus Stal, 1868. Kongliga
Svenska Vet. Akad. Handl. 1: 73.

Characteristics: Length 10-11.5 mm; color similar to L.
kalmii angustomarginatus except Y-shaped red marking on head.

Distribution: McCurtain County.

Melanocoryphus Stal

Lygaeus (Melanocoryphus) Stal, 1872. Ofversigt Finska
Vet. Soc. Forhandl. 29: 41.

Melanocoryphus: Stal, 1874. Kongliga Svenska Vet. Akad.
Handl. 4: 111.

Type species: Cimex apuanus Rossi, 1794=Cimex alboma-
culatus Goeze, 1778. Entomol. Beytr. 2: 264.

Characteristics: Head black not marked with red; upper
surfaces not pubescent; hemelytral membrane without whitish
discal spots.

Melanocoryphus admirabilis Uhler

Lygaeus admirabilis Uhler, 1871. U. S. Geol. Surv.
Wyoming, p. 471 (nomen nudum).

Lygaeus admirabilis Uhler, 1872. In Hayden, Rept.
U. S. Geol. Surv. Montana, p. 405.

Melanocoryphus admirabilis: Uhler, 1886. List Hemiptera
Heteroptera N. Amer. p. 16.

Lygaeus (Melanocoryphus) admirabilis Van Duzee, 1917.

List Hemiptera N. Amer. p. 18.

Characteristics: Length 4.5-6 mm; hemelytral costal, apical, commissural and inner claval margins red; pronotal disc at sides of postmedian carina finely punctate; first antennal segment thick, as thick as apex of head; beak reaching metacoxae.

Distribution: Slater (1964) gives as part of the species distribution Colorado, Kansas, New Mexico and Texas.

Melanocoryphus bicrucis (Say)

Lygaeus bicrucis Say, 1825. J. Acad. Natur. Sci. Philadelphia, 4: 322.

Lygaeus rubescens Stal, 1858. Kongliga Svenska Vet.

Akad. Handl. 2: 1.

Lygaeus flavomarginellus Stal, 1859. Kongliga Svenska Fregattens Eugenies Jorden, 3: 241.

Lygaeus bitransversus Signoret, 1860. Ann. Entomol. Soc. France, 3: 947.

Melanocoryphus bicrucis: Stal, 1874. Kongliga Svenska Vet. Akad. Handl. 4: 113.

Lygaeus (Melanocoryphus) bicrucis: Distant, 1882. Biol. Centr.-Amer. Hemiptera Heteroptera, 1: 185.

Characteristics: Length 7.5-9 mm; head, pronotal front lobe, scutellum, hemelytral membrane, antennae, legs black; pronotal hind lobe, hemelytral corium and clavus, greater

part of venter dull red; front margin of front pronotal lobe, inner margins of clavus and corium margined white.

Distribution: Adair, Choctaw, Craig, LeFlore, McCurtain, Ottawa, Payne, Pittsburg, Pontotoc, Pushmataha, Rogers, Sequoyah, Texas and Woods counties.

Melanocoryphus lateralis (Dallas)

Lygaeus lateralis Dallas, 1852. List Hemiptera Brit.

Mus. 2: 550.

Lygaeus facetus Uhler, 1872 (not Say, 1831). In Hayden, Rept. U. S. Geol. Surv. Montana, p. 405.

Melanocoryphus lateralis: Stal, 1874. Kongliga Svenska Vet. Akad. Handl. 4: 113.

Melanocoryphus facetus Uhler, 1876 (not Say, 1831). Rept. U. S. Geol. Geogr. Surv. Territory, 5: 835.

Lygaeus (Melanocoryphus) lateralis: Distant, 1882. Biol. Centr.-Amer. Hemiptera Heteroptera, 1: 187.

Characteristics: Length 7.3-8 mm; color dark brown to black, pronotal front margin, medial carina, posterior angles and hemelytral corial margin reddish, hemelytral membrane grayish; hind lobe of pronotum coarsely punctate, Fig. 8.

Distribution: Beaver, Beckham, Caddo, Cimarron, Cleveland, Ellis, Jackson, Nowata, Payne, Roger Mills and Texas counties.

Oncopeltus (Erythriscius) Stal

Oncopeltus (Erythriscius) Stal, 1874. Kongliga Svenska

Vet. Akad. Handl. 4: 102.

Type species: Lygaeus fasciatus Dallas, 1852. List Hemiptera Brit. Mus. 2: 538.

Characteristics: Head and pronotum without long hairs or very short pilose; posterior margin of pronotum before scutellum straight or slightly sinuate.

Torre-Bueno (1946) gives a key to the subgenera and species found in the United States.

Oncopeltus (Erythriscius) fasciatus (Dallas)

Lygaeus aulicus Herrich-Schaeffer, 1842 (not Fabricius, 1775). Wanzenartigen Insecten, 6: 76.

Lygaeus fasciatus Dallas, 1852. List Hemiptera Brit. Mus. 2: 538.

Lygaeus (Oncopeltus) fasciatus: Stal, 1868. Kongliga Svenska Vet. Akad. Handl. 1: 75.

Oncopeltus (Erythriscius) fasciatus: Stal, 1874. Ibid. 4: 103.

Erythriscius fasciatus: Uhler, 1876. Bull. U. S. Geol. Geogr. Surv. Territory, 1: 303.

Oncopeltus fasciatus: Distant, 1882. Biol. Centr.-Amer. Hemiptera Heteroptera, 1: 176.

Characteristics: Length 13-18 mm; color black and red or reddish orange; head black with a V-shaped red marking extending from vertex to between antennae; pronotum black, margin red except posterior margin in front of scutellum; hemelytra dark with apical and just behind the middle transverse red bands.

Distribution: Alfalfa, Choctaw, Cleveland, Comanche, Craig, Ellis, Harper, Jackson, LeFlore, Major, McCurtain, McIntosh, Okmulgee, Osage, Pawnee, Payne, Pontotoc, Pushmataha, Texas, Washington and Woodward counties.

Orsillinae

Characteristics: Apical margin of hemelytral corium sinuate near clavus; hind wing subhyaline, not infuscated; ventral abdominal segments four-six of female carinate, compressed and apparently divided at middle.

Key to the Species

1. Basal antennal segment not reaching apex of head . .
. Belonochilus numenius
- Basal antennal segment equalling or surpassing apex
of head 2
2. Hemelytral costal margin straight throughout length .
. Ortholomus scolopax

Hemelytral costal margin straight only at base, if

at all 3

3. Bucculae (elevated plates or ridges on underside of head on each side of beak) short, never reaching beyond middle of ventral head region; first joint of beak extending much beyond bucculae

. Nysius californicus

Bucculae much longer, extending beyond middle of

ventral head region, subequal in length to first

beak joint 4

4. Bucculae high in front, slightly narrowing posteriorly, ending abruptly at base of head

. Nysius angustatus

Bucculae lower in front, tapering toward and ending

before base of head 5

5. Pronotum short, nearly twice as wide as long and subequal to length of head Nysius raphanus

Pronotum longer, less than twice as wide as long,

usually longer than head Nysius ericae

Belonochilus Uhler

Belonochilus Uhler, 1871. Proc. Boston Soc. Natur.

Hist. 14: 104.

Type species: Lygaeus numenius Say, 1831. Descriptions

N. Sp. Heteropterous Hemiptera N. Amer. p. 15.

Characteristics: Head subequal to length of pronotum, first antennal segment not surpassing apex of head; eyes not touching front margin of pronotum; fourth antennal segment fusiform; beak reaching or surpassing fifth ventral sternite.

Belonochilus numenius (Say)

Lygaeus numenius Say, 1831. Descriptions N. Sp.

Heteropterous Hemiptera N. Amer. p. 15.

Belonochilus numenius: Uhler, 1871. Proc. Boston Soc.

Natur. Hist. 14: 104.

Characteristics: 5.3-6 mm; color dull yellow; median line of head, smooth areas on hind lobe of pronotum, median carina of scutellum, costal margin of hemelytral corium, tibiae, abdomen pale yellow; apex of corium; middle of each connexival margin reddish; pronotum punctate, transverse impression deep; beak often reaching last abdominal segment.

Distribution: Slater (1964) gives as part of distribution Kansas and Missouri.

Nysius Dallas

Nysius Dallas, 1852. List Hemiptera Brit. Mus. 2: 551.

Hemidiptera Leon, 1890. Jenaisca. Z. Natur. 25: 13.

Heterogaster Reed, 1900 (not Schilling, 1829). Sinopsis Hemipteros Chile, p. 64.

Brachynysius Usinger, 1942. Bull. Bishop Mus. 173: 44.

Macroparius China, 1943. Generic Names Brit. Insectes
Hemiptera Heteroptera, 8: 236.

Type species: Lygaeus thymi Wolff, 1804. Icones Cimicum
Descriptionibus Illustratae, 4: 149.

Characteristics: Body finely pubescent; head slightly
shorter than wide across eyes; beak reaching metacoxae; pro-
notum punctate; hemelytra entire.

Barber (1947), revision of this genus, and Hantsbarger
(1957), a review of the South Dakota species, are current
papers including the Oklahoma species.

Nysius angustatus Uhler

Nysius angustatus Uhler, 1871. U. S. Geol. Surv.

Wyoming, p. 472 (nomen nudum).

Nysius angustatus Uhler, 1872. In Hayden, Geol. Surv.

Montana, p. 406.

Nysius coloradensis Baker, 1906. Invertebrates Pacific,

1: 135.

Characteristics: Length 3.5-4.5 mm; color and structures
similar to N. californicus, separable by key characters only.

Distribution: Slater (1964) gives as part of the species
distribution Colorado, Kansas, New Mexico and Texas.

Nysius californicus Stal

Nysius californicus Stal, 1859. Kongliga Svenska Fre-
gattens Eugenies Jorden, p. 242.

Nysius sordidus Stal, 1859. Ibid.

Nysius major Berg, 1879. Hemiptera Argentina, p. 101.

Characteristics: Length 4.7-5.6 mm; color grayish yellow, clothed with minute glistening silvery-gray pubescence; head with a large dark spot surrounding each ocellus; pronotum often in great part dark or only a dark transverse band across middle of front lobe and starting down median carina; front margin of scutellum dark; pronotal and scutellar punctures brown; legs pale yellow with brown spots.

Distribution: Adair, Alfalfa, Bryan, Caddo, Canadian, Carter, Choctaw, Cherokee, Cleveland, Comanche, Harmon, Kiowa, LeFlore, Love, Marshall, Mayes, McCurtain, Murray, Okfuskee, Pawnee, Payne, Pittsburg, Pontotoc, Pushmataha, Texas and Woodward counties.

Nysius ericae (Schilling)

Heterogaster ericae Schilling, 1829. Beitr. Z. Entomol.
1: 86.

Lygaeus thymi Fallen, 1829 (not Wolff, 1804). Hemiptera
Succiae Ainicides, p. 49.

Cymus ericae: Herrich-Schaeffer, 1850. Wanzenartigen

Insecten, 9: 203.

Nysius maculatus Fieber, 1861. Europe. Hemiptera, p. 168.

Nysius albidus Jakovlev, 1867. Horae Soc. Entomol.

Ross. 4: 151.

Nysius gracilis Scott, 1870. Stettiner Entomol. Z 31: 98.

Nysius ericae? Puton, 1875. Cat. Hemiptera Europe. p. 20.

Nysius angustatus Baker, 1906 (not Uhler, 1872). In-
vertebrates Pacific, 1: 135.

Nysius angustatus var. niger Baker, 1906. Ibid.

Nysius ericae var. niger: Essig, 1926. Insects Western
N. Amer. p. 349.

Macroparius ericae? Kirktshenko, 1951. Opred. Fauna
SSSR. 4: 269.

Nysius (Nysius) ericae ericae? Stys, 1960. Acta Univ.
Carolina Biol. Suppl. p. 101.

Characteristics: Length 3.2-4.5 mm; color similar to N.
californicus, scutellum often darker.

Distribution: Caddo, Canadian, Cherokee, Comanche, Dela-
ware, Dewey, Garvin, Jackson, Jefferson, Kiowa, LeFlore,
Major, Marshall, Mayes, McCurtain, Murray, Payne, Pontotoc,
Pushmataha and Wagoner counties.

Nysius raphanus Howard

Nysius raphanus Howard, 1872. Phillips Southern
Planter, 1872.

Nysius destructor Riley, 1873. 8th Annu. Rept. State Board Agr. 5: 113.

Nysius strigosus Uhler, 1894. Proc. California Acad. Sci. 2: 238.

Nysius minutus Uhler, 1895. In Gillette and Baker, Bull. Colorado Agr. Exp. Sta. Tech. ser. 1: 22.

Nysius ericae minutus: Cockerell, 1915. Can. Entomol. 47: 281.

Nysius angustatus Watson, 1917 (not Uhler, 1872). Florida Bull. 134: 72.

Characteristics: Length 2.75-3.5 mm; color and shape similar to *N. Californicus*, scutellum often darker.

Distribution: Grant and Payne counties.

Ortholomus Stal

Nysius (Ortholomus) Stal, 1872. Ofversigt Finska Vet. Soc. Forhandl. 29: 43.

Ortholomus: Horvath, 1890. Rev. Entomol. 9: 191.

Type species: Heterogaster punctipennis Herrich-Schaeffer, 1838. Wanzenartigen Insecten, 4: 75.

Characteristics: Body pubescent; head slightly longer than broad across eyes, first antennal joint reaching apex of head, fourth joint fusiform; pronotum coarsely punctate, hind lobe elevated convex, longer and wider than front lobe; scutellum punctate, carina distinct, hemelytra impunctate, entire.

Ortholomus scolopax (Say)

Lygaeus scolopax Say, 1831. Descriptions N. Sp. Heteropterous Hemiptera N. Amer. p. 15.

Nysius saint-cyri Provancher, 1872. Natur. Can. 4(3): 77.

Nysius (Ortholomus) longiceps Stal, 1874. Kongliga Svenska Vet. Akad. Handl. 4: 120.

Belonochilus scolopax: Stal, 1874. Ibid. p. 122.

Nysius scolopax: Glover, 1876. Illinois Mus. Hemiptera, p. 45.

Orsillus scoplopax: Uhler, 1876. Bull. U. S. Geol. Geogr. Surv. Territory, 1: 305.

Harmostes fraterculus Provancher, 1886 (not Say, 1831). Petite Fauna Entomol. Can. 3: 86.

Nysius providus Uhler, 1894 (nec vera). Proc. Zool. Soc. London, p. 182.

Nysius jamaicensis Distant, 1901 (not Dallas, 1852). Ann. Natur. Hist. 7(7): 539.

Ortholomus longiceps: Baker, 1906. Invertebrates Pacifica, 1: 138.

Ortholomus uhleri Baker, 1906. Ibid. p. 139.

Ortholomus jamaicensis: Van Duzee, 1907 (not Dallas, 1852). Bull. Buffalo Soc. Natur. Sci. 8(5): 16.

Nysius uhleri Bank, 1910. Cat. Nearctic Hemiptera Heteroptera, p. 62.

Characteristics: Length 5-6 mm; color grayish brown, thinly clothed with short gray pubescence; pronotal front margin narrow, transversely impressed; apical angles of pronotum and basal half of each connexival blackish; apex of hemelytral corium reddish; membrane whitish-hyaline; hemelytra with brown markings; scutellar carina, apical angles of each connexival dull yellow; venter dull reddish brown, thickly clothed with prostrate grayish pubescence.

Distribution: McCurtain, Payne and Pontotoc counties.

Oxycareninae

This subfamily is sufficiently characterized by the subfamily key.

Crophius Stal

Crophius Stal, 1874. Kongliga Svenska Vet. Akad.

Handl. 4: 141.

Aneuropharus Berg, 1879. Hemiptera Argentina, p. 285.

Oxycarenus Provancher, 1886 (not Fieber, 1837). Petite

Fauna Entomol. Can. 3: 74.

Mayana Distant, 1893. Biol. Centr.-Amer. Hemiptera

Heteroptera Supple. 1: 378.

Type species: Lygaeus disconotus Say, 1831. Descriptions N. Sp. Heteropterous Hemiptera N. Amer. p. 14.

Characteristics: Head porrect, convex, densely punctate; slightly wider across eyes than front of pronotum; antennae slender, longer than head and pronotum united; beak reaching middle of mesosternum; pronotum densely punctate, feebly constricted near middle; scutellum punctate, hemelytra, except hyaline membrane, punctate, entire.

Crophius disconotus (Say)

Lygaeus disconotus Say, 1831. Descriptions N. Sp.

Heteropterous Hemiptera N. Amer. p. 14.

Crophius disconotus: Stal, 1874. Kongliga Svenska Vet.

Akad. Handl. 4: 142.

Oxycareus disconotus Provancher, 1886. Petite Fauna

Entomol. Can. 3: 75.

Characteristics: Length 3-3.75 mm; head, pronotum and scutellum dark reddish brown, hind pronotal lobe often paler; hemelytra whitish hyaline; punctures and veins reddish.

Distribution: Slater (1964) gives as part of the distribution Colorado and Missouri.

Pachygronthinae

Characteristics: Head more or less declivent, inserted into thorax to compound eyes; pronotum not distinctly constricted or impressed to form two lobes, hind margin before scutellum straight, hemelytra punctate, in evident rows.

Slater (1955) revised the entire subfamily.

Key to the Species

1. Head nearly horizontal; first antennal segment sur-
 passing apex of head 2
 Head almost vertical, first antennal segment not
 reaching apex of head 3
2. Fore femora shining black beneath . Oedancala dorsalis
 Fore femora not black beneath . . Oedancala crassimana
3. Second antennal segment twice length of first
 Phlegyas annularus
 Second antennal segment nearly three times length of
 first Phlegyas abbreviatus

Oedancala Amyot and Serville

Oedancala Amyot and Serville, 1843. Hemiptera Hist.

Natur. Insects, p. 258.

Type species: Oedancala dorsilinae Amyot and Serville,
 1843=Lygaeus crassimana Fabricius, 1803. Syst. Rhyngotorum,
 p. 233.

Characteristics: Head longer than wide; first antennal
 joint longer than head, its apex slightly enlarged; beak
 reaching mesosternum; pronotal disc finely, evenly punctate,
 with a pale smooth medial line; hemelytra entire.

Oedancala crassimana (Fabricius)

Lygaeus crassimana Fabricius, 1803. Syst. Rhyngotorum,
p. 233.

Oedancala dorsilinea Amyot and Serville, 1843. Hemip-
tera Hist. Natur. Insects, p. 258.

Pachymerus crassimanus: Herrich-Schaeffer, 1850.

Wanzenartigen Insecten, 9: 147.

Oedancala crassimanus: Stal, 1868. Kongliga Svenska
Vet. Akad. Handl. 2: 122.

Oedancala cubana Provancher, 1886 (not Stal, 1874).

Petite Fauna Entomol. Can. 3: 87.

Oedancala dorsalis Banks, 1910 (not Say, 1831). Cat.
N. Amer. Hemiptera, p. 60.

Characteristics: Length 6.5-7 mm; color above brownish
yellow; head and pronotum with a narrow median yellow stripe,
scutellum with two pale yellow areas on each side; head, pro-
notum, scutellum with punctures brown; punctures of hemelytral
clavus and corium in rows and paler color; membrane hyaline.

Distribution: Rogers County.

Oedancala dorsalis (Say)

Pamera dorsalis Say, 1831. Descriptions N. Sp. Heter-
opterous Hemiptera N. Amer. p. 17.

Oedancala dorsilinea Walker, 1872 (not Amyot and Serville, 1843). Cat. Hemiptera Heteroptera Brit. Mus. 5: 145.

Oedancala dorsalis Walker, 1873. Cat. Hemiptera Heteroptera Supple. p. 52.

Oedancala crassimana Stal, 1874 (not Fabricius, 1803). Kongliga Svenska Vet. Akad. Handl. 4: 139.

Plociomerus dorsalis: Glover, 1876. Manuscript Notes J. Illustrations Insects Native Foreign Hemiptera, p. 56.

Characteristics: Length 6-6.3 mm; color pattern similar to O. crassimana but darker and more contrasting.

Distribution: Choctaw, McCurtain, Payne and Rogers counties.

Phlegyas Stal

Phlegyas Stal, 1865. Hemiptera Afr. 2: 145.

Helonotus Uhler, 1876. Bull. U. S. Geol. Geogr. Surv. Territory, 1: 312.

Peliopelta Uhler, 1886. Checklist N. Amer. Hemiptera, p. 15.

Helonotocoris Lethierry, 1888. Ann. Mus. Natur. Hist. Genova, 2(6): 463.

Type species: Phlegyas annulicrus Stal, 1869. Berlin Entomol. Zeit. 13: 230.

Characteristics: Antennae but slightly longer than pronotum, second antennal joint longest, three times length of first; front of head flattened; hemelytra entire, narrower

than abdomen.

Phlegyas abbreviatus (Uhler)

Helonotus abbreviatus Uhler, 1876. Bull. U. S. Geol.

Geogr. Surv. Territory, 1: 313.

Pelionotus abbreviatus: Glover, 1876. Manuscript Notes

J. Illustrations Native Foreign Hemiptera, plate 2.

Henestris abbreviatus: Brodie and White, 1883. Checklist

Insects Dominion Can. p. 60.

Peliopelta abbreviata: Uhler, 1886. List N. Amer. Hemip-

tera, p. 15.

Phlegyas annulicrus Wirtner, 1905 (not Stal, 1869).

Ann. Carnegie Mus. 3: 193.

Phlegyas abbreviatus: Van Duzee, 1905. 20th Rept. New

York Sta. Entomol. p. 549.

Characteristics: Length 3-5 mm; color dull reddish brown, head, middle of pronotum, scutellum and venter densely clothed with iridescent yellowish-gray pubescence; pronotum with a black transverse band before middle and one across base, these often interrupted to form spots or absent altogether; scutellar carina, margins of hemelytral corium, in part, and a spot on each connexival blackish; hemelytral membrane whitish hyaline.

Distribution: McCurtain, Murray, Noble, Pawnee and Payne counties.

Phlegyas annulicrus Stal

Phlegyas annulicrus Stal, 1869. Berlin Entomol. Zeit.

13: 230.

Peliopelta tropicalis Distant, 1893. Biol. Centr.-

Amer. Heteroptera Supple. 1: 114.

Phlegyas tropicalis: Lethierry and Serville, 1894.

Gen. Cat. Hemiptera, 2: 179.

Characteristics: Length 4.5-5 mm; color generally similar to P. abbreviatus, separated best by key characters.

Distribution: Okmulgee and Payne counties.

Rhyparochrominae

Characteristics: First two segments of beak united, much longer than head; ocelli not widely separated; female five and six abdominal ventrals narrower toward middle, not obliquely prolonged forward, nearly vertical, tips of sixth meeting on median line of apically compressed abdomen.

Key to the Tribes

1. Body length less than 2.5 mm Antillocorini
- Body length greater than 2.5 mm 2
2. Two lateral glandular opaque spots on abdominal fourth sternite close to anterior spot and remote from posterior margin, Fig. 4 3

- Two lateral glandular opaque spots on abdominal fourth sternite widely separated, posterior spot closer to posterior margin than to anterior spot, Fig. 3 . . . 4
3. Pronotal marginal lamellar expansion noticeably wider between two lobes Drymini
- Pronotal marginal lamellar expansions not obviously widened between two lobes Lethaeini
4. Pronotum with side margin of front lobe obtusely rounded Myodochini
- Pronotum with side margins of front lobe carinate or laminate expanded 5
5. Pronotal side margins simply carinate 6
- Pronotal side margins laminate expanded 7
6. Compound eyes not in contact with front margin of pronotum Oxophorini
- Compound eyes in contact with front margin of pronotum Rhyparochromini
7. Scutellum with two subapical pale spots Megalonotini
- Scutellum concolorous Gonianotini

Lethaeini Stal

Lethaearia Stal, 1872. Ofversigt Finska Vet. Soc.

Forhandl. 29: 59.

Lipostemmatina Berg, 1879. Hemiptera Argentina Sp. N.

p. 288.

Drymoidea Breddin, 1907. Deut. Entomol. Z., p. 209.

Lethiini: Van Duzee, 1916. New York Entomol. Soc. p. 23.

Lethaeini: Parshley, 1916. Psyche, 23: 129.

Camptocerini Wagner, 1961. Acta Entomol. Mus. Nat.

Pragae, 23(580): 102.

Characteristics: Head small, triangulate, ocelli widely separated, distance between them three or more times that between them and compound eyes; basal antennal segment exceeding apex of head by half or more its length; second segment longest, three and four subequal; beak reaching metacoxae.

Key to the Species

1. Hemelytral clavus with three rows of punctures . . .
 Cryphula trimaculata
- Hemelytral clavus coarsely and irregularly
 punctured Cistalia explanata

Cistalia Stal

Cistalia Stal, 1874. Kongliga Svenska Vet. Akad.

Handl. 4: 164.

Type species: Lygaeus signoretii Guerin, 1857. In
 Sagra, Hist. Cuba Insectes, p. 396.

Characteristics: Dorsum somewhat shiny; lateral edges of pronotum not widened between lobes, commonly not pale;

anterior angles of pronotum with a long seta; scutellum longer than wide, hind tibiae with long bristles; basal segment of beak subequal to length of first antennal segment; fore femora with few tubercles and numerous long setae; basal segment of hind tarsi twice as long as second and third together; hind tibiae with strong bristles.

Cistalia explanata Barber

Cistalia signoretii auct. (not Guerin, 1857).

Cistalia explanata Barber, 1938. Proc. Entomol. Soc.

Washington, 40: 88.

Characteristics: Length 5-6 mm; basal antennal segment gradually enlarged toward apex; all segments distinctly pilose, without longer scattered hairs; hemelytral clavus coarsely and irregularly punctate.

Distribution: Torre-Bueno (1946) gives as distribution of species Kansas and Texas.

Cryphula Stal

Cryphula Stal, 1874. Kongliga Svenska Vet. Akad. Handl.

4: 164.

Trapezus Distant, 1882. Biol. Centr.-Amer. Heteroptera,

1: 217.

Type species: Cryphula parallelogramma Stal, 1874.

Kongliga Svenska Vet. Akad. Handl. 4: 165.

Characteristics: Head inserted in thorax to eyes; beak surpassing mesocoxae; pronotum subquadrate, two-thirds wider than long, sides subparallel, pronotal disk without transverse constriction; scutellum flattened, not carinate; hemelytra entire or abbreviated, if so, reaching sixth dorsal tergite.

Cryphula trimaculata (Distant)

Cryphula parallelogramma auct. (not Stal, 1874).

Trapezus trimaculata Distant, 1882. Biol. Centr.-Amer.

Heteroptera, 1: 217.

Cryphus trimaculata Scudder, 1962. Can. Entomol. 94: 766.

Characteristics: Length 3-4 mm; head, disk of pronotum, base of scutellum, venter reddish brown; side, hind angles, spots near base of pronotum, hemelytral corium, three small spots on apical half of scutellum dull yellow; tibiae with coarse bristles; basal joint of hind tarsi subequal to joints two and three together; hemelytral clavus with three rows of punctures, corium thickly irregularly punctate.

Distribution: Slater (1964) gives as species distribution Colorado, Kansas and Missouri.

Antillocorini Ashlock

Antillocorini Ashlock, 1964. Ann. Entomol. Soc. Amer.

57(4): 420.

This tribe is sufficiently characterized by the tribal key; thus no further description is given.

Antillocoris Kirkaldy

Salacia Stal, 1874. Kongliga Svenska Vet. Akad. Handl.
4: 156.

Pygaeus Uhler, 1894. (Agassiz, 1835). Proc. Zool.
Soc. London, p. 187.

Antillocoris Kirkaldy, 1904. Entomol. 37: 280.

Cligenes Banks, 1910 (not Distant, 1893). Cat. Nearctic
Hemiptera, p. 63.

Type species: Pygaeus pallidus Uhler, 1894. Proc. Zool.
Soc. London, p. 187.

Characteristics: Head with eyes as wide as front margin of thorax, beak reaching mesocoxae; first antennal segment exceeding apex of head; pronotum feebly constricted to form two lobes; hemelytra in macropterous forms entire, brachypterous forms with membrane often absent.

Antillocoris pilosulus Stal

Salacia pilosula Stal, 1874. Kongliga Svenska Vet.
Akad. Handl. 4: 158.

Cligenes pilosulus: Bergroth, 1895. Rev. Entomol.
14: 143.

Pygaeus pilosulus: Van Duzee, 1909. Can. Entomol. 41: 374.

Antillocoris (Cligenes) pilosulus: Torre-Bueno, 1912.

Ibid. 44: 212.

Antillocoris pilosulus: Van Duzee, 1917. Checklist N.

Amer. Hemiptera, p. 22.

Characteristics: Length 1.8-2 mm; dorsum clothed thickly with yellowish pilose hairs; antennae and venter reddish brown; hemelytral corium in brachypterous forms reaching middle of fourth dorsal.

Distribution: LeFlore and McCurtain counties.

Drymini Stal

Drymaria Stal, 1872. Ofversigt Finska Vet. Soc. Forhandl.

29: 59.

Drymoidea: Breddin, 1907. Deut. Entomol. Z. p. 203.

Drymini: Gulde, 1937. Wanzen Mitteleuropas, 5(2): 183.

Eremocorini Putshkov, 1958. Rev. Entomol. U. R. S. S.

37(2): 412.

Characteristics: Posterior pair of trichobathria, which appear as a dull spot, on sternum five anterior to spiracle.

Key to the Species

1. Pronotum with both lobes distinctly and closely punctate 2
- Pronotal front lobe impunctate . . . Eremocoris ferus

2. Pronotal side margins slightly paler than disk; front lobe of pronotum darker and more finely punctate than hind lobe Drymus unus
- Pronotum entirely dark brown, side margins not paler; both lobes evenly, densely and coarsely punctate Drymus crassus

Drymus Fieber

Drymus Fieber, 1860. Europe. Hemiptera, p. 46.

Type species: Drymus pilipes Fieber, 1861. Ibid. p. 179.

Characteristics: Head not inserted in thorax to eyes; pronotum with side margins rounded in front of middle, edges slightly expanded, front lobe without a definite collar; scutellum flat, thickly punctate; hemelytra entire; hind tibiae without rigid bristles.

Drymus crassus Van Duzee

Drymus crassus Van Duzee, 1910. Trans. Amer. Entomol.

Soc. 36: 76.

Characteristics: Length 6.5-7 mm; color darker than D. unus; head, pronotum densely coarsely punctate.

Distribution: McCurtain County.

Drymus unus (Say)

Pamera unus Say, 1831. Descriptions N. Sp. Heteropterous

Hemiptera N. Amer. p. 16.

Megalonotus una: Glover, 1876. Manuscript Notes J.

Illustrations Insects Native Foreign Hemiptera

Heteroptera, p. 56.

Rhyparochromus una: Distant, 1882. Biol. Centr.-Amer.

Heteroptera 1: 215.

Drymus unus: Horvath, 1908. Ann. Hist. Natur. Mus.

Hungary, 6: 564.

Characteristics: Length 4.2-5 mm; head, front lobe of pronotum and sternum dark brown, hind lobe of pronotum and hemelytra lighter brown, punctation dark brown.

Distribution: Slater (1964) gives as part of distribution Colorado, Missouri and Texas.

Eremocoris Fieber

Eremocoris Fieber, 1860. Europe. Hemiptera, p. 49.

Type species: Lygaeus erraticus Fabricius, 1794=Cimex abietis Linnaeus, 1758. Syst. Natur. 10 Ed. p. 450.

Characteristics: Head almost porrect, not inserted in thorax; pronotum longer than wide, apical lobe strongly convex, side margins flattened; hemelytral clavus with regular rows of punctures, hemelytra entire.

Eremocoris ferus (Say)

Pamera fera Say, 1831. Descriptions N. Sp. Heteropterous

Hemiptera N. Amer. p. 16.

Rhyparochromus borealis Dallas, 1852. List Hemipterous Insects Brit. Mus. 2: 565.

Eremocoris ferus: Uhler, 1871. Proc. Boston Soc. Natur. Hist. 14: 103.

Rhyparochromus ferus: Walker, 1872. Cat. Hemiptera Brit. Mus. 5: 89.

Characteristics: Length 5.2-6 mm; head, front lobe of pronotum, four stripes on hind lobe, venter brownish black; side margins of pronotum, hind lobe of pronotum except dark stripes, basal half of hemelytra brownish yellow; hemelytral corium with fuscous blotches, membrane dark brown with pale spots on each side near apex of corium.

Distribution: Slater (1964) gives as part of distribution Colorado, Kansas, Missouri, New Mexico and Texas.

Ozophorini Sweet

Ozophorini Sweet, Slater (1964) states that this tribe by Sweet is in press, and I have not yet found it in the literature.

This tribe is sufficiently characterized by the tribal key; thus no further description is given.

Ozophora Uhler

Ozophora Uhler, 1871. Proc. Boston Soc. Natur. Hist. 14: 102.

Davila Distant, 1893. Biol. Centr.-Amer. Heteroptera
Supple. 1: 394.

Peggichisme Kirkaldy, 1904. Entomol. 37: 280.

Type species: Ozophora picturata Uhler, 1871. Proc.
Boston Soc. Natur. Hist. 14: 102.

Characteristics: Head wider across eyes than front margin of pronotum, beak reaching metacoxae or first abdominal sternite, first joint as long as head; hemelytra entire.

Ozophora picturata Uhler

Ozophora picturata Uhler, 1871. Proc. Boston Soc.
Natur. Hist. 14: 102.

Davila consanguineus Distant, 1893. Biol. Centr.-Amer.
Heteroptera Supple. 1: 395.

Ozophora consanguineus: Uhler, 1894. Proc. Zool. Soc.
London, p. 186.

Characteristics: Length 6-6.5 mm; head, front lobe of pronotum, disk of scutellum dark brown; hind lobe of pronotum often with four vague dark stripes; hemelytral corium with an elongate spot opposite apex of scutellum, costal area and triangular spot near inner apical angle pale yellow.

Distribution: Latimer, McCurtain, Nowata and Pontotoc counties.

Myodochini Boitard.

Myodoques Boitard, 1827. Manual Hist. Natur. 1: 438.

Myodocharia: Stal, 1872. Ofversigt Finska Vet. Soc.

Forhandl. 29: 50.

Plociomeraria Puton, 1879. Mem. Soc. Sci. Agr. Lille,

6(4): 309.

Myodochinae: Breddin, 1907. Deut. Entomol. Z. p. 203.

Pameroidea Breddin, 1907. Ibid.

Myodochini: Van Duzee, 1916. New York Entomol. Soc.,

p. 21.

Myodochidae: Bianki and Kiritshenko, 1923. Practical

Entomol. 4: 67.

Plociomerini: Gulde, 1936. Wanzen Mitteleuropas, 5: 94.

Characteristics: Pronotum with side margins of front lobe obtusely rounded or terete, never carinate or laminate-expanded, disk usually strongly constricted transversely to form two distinct lobes, front lobe usually with a ring-like collar behind front margin.

Key to the Species

1. Head greatly exserted, postocular portion of head drawn out into a long cylindrical neck, neck longer than pronotum, Fig. 10. Myodocha serripes

- Postocular portion of head not so drawn out, neck not
as long as pronotum 2
2. Pronotal front lobe not more than twice as long as
hind lobe 3
- Pronotal front lobe three or four times as long as
hind lobe, Fig. 11 Cnemodus mavortius
3. Head not inserted into prothorax to compound eyes;
anterior pronotal margin with a ring-like collar . 4
- Head inserted into prothorax to compound eyes; pro-
notum without an anterior collar 11
4. Postocular space about four times that between com-
pound eye and base of antenna . . . Heraeus plebejus
- Postocular space subequal to that between compound eye
and base of antenna 5
5. Pronotal lobes separated by a shallow, obtuse trans-
verse constriction; first joint of beak reaching
base of head 6
- Pronotal lobes separated by a deep, distinct trans-
verse constriction; first joint of beak not reaching
base of head 7
6. Length 5.4-6.5 mm Perigenes similis
Length 7-9 mm Perigenes constrictus
7. Abdominal venters two and three with a very fine
strigose lunate area on either side, Fig. 3 8

- Abdominal venters two and three without lunate
strigose areas on either side 10
8. Head and pronotum shining; first antennal segment
subequal in length to first joint of beak
. Pseudopamera niniticollis
- Head and pronotum not shining; first antennal segment
shorter than first joint of beak 9
9. Transverse dark bar not reaching costal edge of
hemelytral corium Ligyrocoris diffusus
- Transverse dark bar reaching costal edge of hemelytral
corium Ligyrocoris sylvestris
10. Hemelytral costal margin, except apex, wholly pale,
not interrupted behind middle by a transverse black
band Pachybrachius basalis
- Hemelytral costal margin interrupted behind middle by
a transverse black band . . . Pachybrachius bilobata
11. Scutellum much longer than wide, distinctly carinate
posteriorly; meta-basal tarsal joint subequal in
length to second and third together 12
- Scutellum subequilateral, not distinctly carinate
posteriorly; meta-basal tarsal joint longer than
second and third together Valonetus puberulus
12. Antennal segments two and three filiform, two longer
than three Exptochiomera oblonga

Antennal segments more or less swollen, sometimes

clavate 13

13. Antennal segment three thicker than four

. Ptochiomera nodosa

Antennal segment three thinner than four

. Sisamnes clavigera

Cnemodus Herrich-Schaeffer

Cnemodus Herrich-Schaeffer, 1850. Wanzenartigen Insecten, 9: 184.

Type species: Cnemodus brevipennis Herrich-Schaeffer, 1850=Astemma mavortia Say, 1831. Descriptions N. Sp. Heteropterous Hemiptera N. Amer. p. 19.

Characteristics: Head porrect, distinctly exserted, ocelli absent; antennae slender, longer than half length of body, basal joint exceeding length of head by two-thirds its length, second longest, third and fourth subequal.

Cnemodus mavortius (Say)

Astemma mavortia Say, 1831. Descriptions N. Sp. Heteropterous Hemiptera N. Amer. p. 19.

Lygaeus mavortia: Harris, 1835. In Hitchcock, Rept. Geol. Mineral. Bot. Zool. Massachusetts, p. 578.

Cnemodus brevipennis Herrich-Schaeffer, 1850. Wanzenartigen Insecten, 9: 184.

Thaumastopus alacris Walker, 1872. Cat. Hemiptera
Brit. Mus. 5: 147.

Cnemodus mavortius: Uhler, 1876. Bull. U. S. Geol.
Geogr. Surv. Territory, 1: 308.

Characteristics: Length 8-9 mm; color black, pronotum shining; hemelytral costal margin paler color; antennae reddish brown; brachypterous form, membrane of hemelytra not exceeding apex of corium, not beyond fifth abdominal tergite, macropterous form hemelytra entire.

Distribution: Osage, Payne and Sequoyah counties.

Exptochiomera Barber

Exptochiomera Barber, 1928. J. New York Entomol. Soc.
36: 175.

Type species: Lygaeus (Beosus) minimus Guerin, 1857.

In Sagra, Hist. Cuba Insectes, p. 398.

Characteristics: Third, fourth antennal segments filiiform, much more slender than either basal or terminal segments; body glabrous or sparsely pilose; anterior tibiae of male most often without post median spine; hemelytra entire.

Barber (1953a) gives a key and description of the genus.

Exptochiomera oblonga (Stal)

Plociomera oblonga Stal, 1862. Stettiner Entomol. Z.
23: 313.

Ptochiomera oblonga: Uhler, 1886. Checklist Hemiptera

Heteroptera N. Amer. p. 15.

Exptochiomera oblonga: Barber, 1828. J. New York Entomol.

Soc. 36: 176.

Characteristics: Length 3.64 mm; color brown, hemelytral corium, except veins and membrane whitish; compound eyes not quite touching anterior angles of pronotum; antennae longer than head and pronotum combined; anterior lobe of pronotum longer than hind lobe; hemelytral claval commissure one-third as long as scutellum.

Distribution: Payne County.

Heraeus Stal

Heraeus Stal, 1862. Entomol. Z. 23: 314.

Type species: Lygaeus (Plociomerus) triguttatus Guerin, 1857. In Sagra, Hist. Cuba Insectes, p. 400.

Characteristics: Head exserted, tapering into a distinct neck; antennae reaching middle of scutellum, first joint slightly exceeding tip of head, third and fourth subequal, second longer, beak reaching middle of mesosternum, first joint shorter than base of head; front lobe of pronotum subglobose, narrow, slightly longer than hind lobe; scutellar apex acute; hemelytra of macropterous forms entire; hind femora with fine stiff bristles; basal joint of hind tarsi as long as others united.

Heraeus plebejus Stal

Heraeus plebejus Stal, 1874. Kongliga Svenska Vet.

Akad. Handl. 4: 147.

Characteristics: Length 4.5-5.5 mm; body thinly clothed with short, yellowish pubescence; head, front lobe of pronotum, scutellum, venter dull brown to black; hind lobe of pronotum, hemelytra reddish brown, margins paler; hemelytral corium and clavus with more or less regular rows of punctures.

Distribution: Adair, Caddo, Cherokee, Choctaw, Comanche, Hughes, LeFlore, Mayes, McCurtain, Ottawa, Payne and Pottawatomie counties.

Ligyrocoris Stal

Ligyrocoris Stal, 1872. Ofversigt Finska Vet. Soc.

Forhandl. 29: 51.

Type species: Cimex sylvestris Linnaeus, 1758. Syst. Natur. 10 Ed. p. 449.

Characteristics: Head porrect, wider across eyes than front lobe of pronotum, without distinct neck, beak reaching mesocoxae, first joint not reaching base of head; front lobe of pronotum narrow, less than twice length of hind lobe; scutellum usually much longer than wide; basal segment of hind tarsi usually more than twice length of others united.

Ligyrocoris diffusus (Uhler)

Plociomerus diffusus Uhler, 1871. Proc. Boston Soc.

Natur. Hist. 14: 101.

Cymbogaster diffusus Uhler, 1871. U. S. Geol. Surv.

Wyoming, p. 472.

Pamera vicina Osborn, 1898 (not Dallas, 1852). Proc.

Iowa Acad. Sci. 5: 233.

Ligyrocoris contractus Smith, 1910 (not Say, 1831). Ann.

Rept. New Jersey State Mus. Trenton, p. 143.

Ligyrocoris diffusus Banks, 1910. Cat. Nearctic Hemip-

tera Heteroptera, p. 65.

Characteristics: Length 5.2-7 mm; head, front lobe of pronotum, scutellum dull black, bearing a few short erect hairs, hemelytral clavus with a transverse bar not clearly defined across corium and apex of clavus pale reddish brown; hind lobe of pronotum with hind angles and often three vague stripes on disk, pale; front lobe of pronotum much less than twice the length of and distinctly narrower than the hind lobe; collar width plainly less than that of the constriction between lobes.

Distribution: Slater (1964) gives as the species distribution Colorado, Kansas, Missouri, New Mexico and Texas.

Ligyrocoris sylvestris (Linnaeus)

Amex sylvestris Linnaeus, 1758. Syst. Natur. 10 Ed. p. 449.

Lygaeus sylvestris: Fabricius, 1794. Entomol. Syst. p. 166.

Acanthia sylvestris: Wolff, 1802. Icones Cimicum Descriptionibus Illustratae, 3: 90.

Pamera contracta Say, 1931. Descriptions N. Sp. Heteropterous Hemiptera N. Amer. p. 16.

Pachymerus sylvestris: Hahn, 1832. Wanzenartigen Insecten, 1: 54.

Plociomerus silvestris: Sahlberg, 1848. Monogr. Geocorisarum Fenniae, p. 70.

Rhyparochromus sylvestris: Lucas, 1852. Exploration Sci. Algerie Zool. 3: 74.

Rhyparochromus vicinus Dallas, 1852. List Hemiptera Brit. Mus. 2: 576.

Plociomerus luchsii Baerensprung, 1859. Berlin Entomol. Z. 3: 329.

Pachymerus (Plociomerus) silvestris: Flor, 1860. Rhynchoten Livlands Syst. Folge, p. 231.

Lygaeus (Plociomera) sylvestris: Thomson, 1870. Opusc. Entomol. Fasc. 2(12): 194.

Ligyrocoris silvestris: Stal, 1872. Ofversigt Finska Vet. Soc. Forhandl. 29: 51.

Pamera vicina: Stal, 1874. Kongliga Svenska Vet. Akad.
Handl. 4: 145.

Ligyrocoris luchsii: Reuter, 1881. Entomol. Tijdschr.
2: 76.

Pamera bilobata Provancher, 1886 (not Say, 1831).
Petite Fauna Entomol. Can. 3: 82.

Ligyrocoris contractus: Lethierry and Severin, 1894.
Gen. Cat. Hemiptera, 2: 190.

Ligyrocoris diffusus Van Duzee, 1908 (not Uhler, 1871).
Can. Entomol. 40: 110.

Orthaea vicina: Blatchley, 1926. Heteroptera E. N.
Amer. p. 398.

Characteristics: Length 4.7-5.5 mm; color pattern similar to L. diffusus except dark transverse bar more clearly defined.

Distribution: Slater (1964) gives as distribution of species Colorado, Kansas, Missouri and Texas.

Myodocha Latreille

Myodocha Latreille, 1807. Genera Crustaceorum Insectorum, 3: 127.

Myodochus: Oliver, 1811. Hist. Natur. Insects Encycl.
Method. 8: 105.

Chiroleptes Kirby, 1837. In Richardson, Fauna Boreali-Amer. 4: 280.

Type species: Myodocha serripes Oliver, 1811. Hist. Natur. Encycl. Method. 8: 105.

Characteristics: Head oval, pointed, longer than pronotum, drawn out behind eyes into long curved neck; eyes prominent, coarsely faceted; beak reaching mesosternum, first two joints not reaching base of head; pronotum bell shaped; hemelytra punctate, entire; first tarsal joint of hind legs three times longer than other joints united.

Myodocha serripes Oliver

Myodocha serripes Latreille, 1810. Considerations

Gen. Natur. Anim. Crustaces Arachnides Insectes,

29: 433 (nomen nudum).

Myodochus serripes Oliver, 1811. Hist. Natur. Insects

Encycl. Method. 8: 105.

Myodocha opetilata Say, 1831. Descriptions N. Sp.

Heteropterous Hemiptera N. Amer. p. 19.

Chiroleptes raptor Kirby, 1837. In Richardson, Fauna

Boreali-Amer. 4: 281.

Characteristics: Length 8-9.5 mm; head, venter shining black; pronotum, scutellum brownish black; hemelytra reddish brown, costal margins, two spots near apical margin of corium yellow; membrane brown with pale spot near apex.

Distribution: Adair, Bryan, Caddo, Carter, Craig, LeFlore, Mayes, McCurtain, Ottawa, Payne, Pontotoc, Rogers and Woods counties.

Pachybrachius Hahn

Pachybrachius Hahn, 1826. Icones Monogr. Cimicum, 1: 18.

Plociomerus Amyot and Serville, 1843 (not Say, 1831).

Hist. Natur. Insectes Hemipteres, p. 255.

Orthaea Dallas, 1852. List Hemiptera Brit. Mus. 2: 580.

Gyndes Stal, 1862. Stettiner Entomol. Z. 23: 314.

Diplonotus Stal, 1872. Ofversigt Finska Vet. Soc.

Forhandl. 29: 51.

Pamera Stal, 1874 (not Say, 1831). Kongliga Svenska

Vet. Akad. Handl. 4: 147.

Budaeus Distant, 1904. Fauna Brit. India Ceylon Burma

Rhynchota, 2: 76.

Type species: Pachybrachius luridus Hahn, 1826. Icones Monogr. Cimicum, 1: 18.

Characteristics: Head porrect, broader across eyes than front margin of pronotum; antennae slender, longer than head and pronotum united; beak reaching mesocoxae, first joint not reaching base of head; pronotum strongly constricted, front lobe subcylindrical, longer than hind lobe, collar distinct; hemelytra entire; basal tarsi of hind legs twice as long as others united.

Barber (1953b) reviewed the genus and added new species to the nearctic fauna.

Pachybrachius basalis Dallas

Lygaeus (Pachymera) bilobata Harris, 1835 (not Say, 1931). In Hitchcock, Rept. Geol. Mineral. Bot. Zool. Massachusetts, p. 577.

Rhyparochromus basalis Dallas, 1852. List Hemiptera Brit. Mus. 2: 575.

Pamera basalis: Stal, 1874. Kongliga Svenska Vet. Akad. Handl. 4: 152.

Pamera curvipes Stal, 1874. Ibid. p. 148.

Orthaea (Pamera) basalis: Tucker, 1907. Univ. Kansas Sci. Bull. 4(2): 56.

Orthoea basalis Torre-Bueno, 1910. J. New York Entomol. Soc. 18: 30.

Orthaea curvipes Van Duzee, 1917. Checklist N. Amer. Hemiptera, p. 22.

Pachybrachius basalis Procter, 1946. Biol. Surv. Mt. Desert, 7: 73.

Characteristics: Length 3.7-5.2 mm; head, front lobe of pronotum, scutellum, venter dull black; head, venter of abdomen thickly clothed with minute yellowish-gray pubescence; hind lobe of pronotum paler at middle; hemelytral corium clavus off-white, rows of brownish punctures, corium with a small rounded white spot in inner apical angle; membrane pale brown; veins whitish; pronotal front lobe subglobose, hind

lobe and scutellum coarsely irregularly punctate, scutellum with a low median keel toward apex.

Distribution: Payne County.

Pachybrachius bilobatus (Say)

Pamera bilobata Say, 1831. Descriptions N. Sp. Hemipterous Hemiptera N. Amer. p. 17.

Plociomerus maculatus Amyot and Serville, 1843. Hist. Natur. Insectes Hemipteres, p. 255.

Rhyparochromus lineatus Dallas, 1852 (not Fabricius, 1798). List Hemiptera Brit. Mus. 2: 575.

Lygaeus (Plociomerus) servillei Guerin, 1857. In Sagra, Hist. Cuba Insectes, p. 399.

Rhyparochromus (Plociomerus) ochroceras Stal, 1858. Kongliga Svenska Vet. Akad. Handl. 1: 39.

Rhyparochromus maculatus Dohrn, 1859. Cat. Hemiptera, p. 34.

Rhyparochromus ochroceras: Stal, 1859. Kongliga Svenska Fregattens Eugenies Jorden, 3: 245.

Plociomerus bilobatus: Stal, 1862. Stettiner Entomol. Z. 23: 312.

Pachymera bilobata: Rathvon, 1869. In Mombert, Hist. Lancaster County Pennsylvania, p. 549.

Plociomerus ochroceras: Walker, 1872. Cat. Hemiptera Brit. Mus. 5: 118.

Plociomerus servillei: Walker, 1873. Cat. Hemiptera
Brit. Mus. Supple. p. 52.

Pamera maculata: Stal, 1874. Kongliga Svenska Vet.
Akad. Handl. 4: 152.

Pamera dallasi Distant, 1882. Biol. Centr.-Amer.
Heteroptera, 1: 208.

Pamera vincta Ouaintance, 1897 (not Say, 1831). Bull.
Florida Agr. Exp. Sta. 42: 564.

Orthoea bilobata: Kirkaldy, 1907. Ann. Entomol. Soc.
Belgium, 51: 121.

Pamera lineata Banks, 1910 (not Fabricius, 1798). Cat.
Nearctic Hemiptera Heteroptera, p. 66.

Orthaea bilobata: Van Duzee, 1916. Checklist N. Amer.
Hemiptera, p. 22.

Orthaea servillei: Gowdey, 1926. Entomol. Bull. Dept.
Agr. Jamaica, 4: 34.

Pachybrachius bilobatus: Barber, 1939. Sci. Surv. Port
Rico Virgin Islands, 14: 352.

Characteristics: Length 4.8-5.3 mm; head, pronotum,
scutellum and venter dark reddish brown to black; hind lobe
of pronotum usually with three vague blackish stripes; heme-
lytral corium and clavus dull white with brown punctures,
corium usually with a stripe along claval suture, an angulate
cross-bar behind middle, apex darker; membrane pale brown;
pronotal front lobe subcylindrical, sides rounded, collar present.

Distribution: Love and McCurtain counties.

Perigenes Distant

Perigenes Distant, 1893. Biol. Centr.-Amer. Heteroptera

Supple. 1: 396.

Type species: Perigenes dispositus Distant, 1893. Ibid.

Characteristics: Head wider across eyes than front margin of pronotum, convex, inserted to eyes; beak slightly surpassing mesocoxae, first joint reaching base of head, joints two-four with erect hairs; pronotum nearly bell-shaped, transverse constriction behind middle shallow; scutellum slightly keeled on apical half; hemelytra entire.

Perigenes constrictus (Say)

Pamera constrictus Say, 1831. Descriptions N. Sp.

Heteropterous Hemiptera N. Amer. p. 15.

Lygaeus (Pachymera) constricta: Harris, 1835. In

Hitchcock, Rept. Geol. Mineral. Bot. Zool. Massachusetts, p. 577.

Pachymera constricta: Rathvon, 1869. In Mombert, Hist.

Lancaster County Pennsylvania, p. 549.

Plociomerus constructus Uhler, 1871. Proc. Boston Soc.

Natur. Hist. 14: 101.

Ligyrocoris constrictus: Stal, 1874. Kongliga Svenska

Vet. Akad. Handl. 4: 146.

Perigenes fallax Heidemann, 1903. Proc. Entomol. Soc.
Washington, 5: 156.

Perigenes constrictus: Van Duzee, 1909. Can. Entomol.
41: 372.

Perigenes costalis Parshley, 1917 (not Van Duzee, 1909).
Occasional Papers Boston Soc. Natur. Hist. 7: 49.

Characteristics: Length 7-9 mm; head, front lobe of pronotum, scutellum, venter dull black, thickly clothed with fine appressed yellowish pubescence, numerous erect stiff hairs; hind lobe of pronotum, hemelytral clavus, disk of corium dark reddish brown; hemelytral costal margin of corium pale yellow, interrupted behind middle by dark spot; membrane dark brown; anterior femora with anteriorly placed spines, one large another smaller.

Distribution: Mayes County.

Perigenes similis Barber

Perigenes similis Barber, 1906. Bull. Mus. Brooklyn
Inst. Arts Sci. 1: 276.

Perigenes constrictus Blatchley, 1926 (not Say, 1831).
Heteroptera E. N. Amer. p. 404.

Characteristics: Length 5.4-6.5 mm; similar in color to P. constrictus; anterior femora with one anteriorly placed large spine.

Distribution: Adair, Hughes, Kiowa, Mayes and Marshall counties.

Pseudopamera Distant

Pseudopamera Distant, 1882. Biol. Centr.-Amer. Heteroptera, 1: 209.

Ligyrocoris (Neoligyrocoris) Barber, 1921. J. New York Entomol. Soc. 29: 2.

Type species: Pseudopamera aurivilliana Distant, 1882. Biol. Centr.-Amer. Heteroptera, 1: 209.

Characteristics: Head and pronotum shining; first antennal segment long, nearly as long as first joint of beak; anterior tibiae in male curved and armed with a medial tooth.

Pseudopamera nitidicollis (Stal)

Pamera nitidicollis Stal, 1874. Kongliga Svenska Vet.

Akad. Handl. 4: 150

Ligyrocoris nitidicollis: Barber, 1914. Bull. Amer.

Mus. Natur. 33: 514.

Orthaea nitidicollis: Van Duzee, 1916. Checklist N.

Amer. Hemiptera, p. 22.

Ligyrocoris (Neoligyrocoris) nitidicollis: Barber, 1921.

J. New York Entomol. Soc. 29: 101.

Pseudopamera nitidicollis: Slater, 1964. Cat. Lygaeidae

World, p. 1165.

Characteristics: Length 4-4.5 mm; front pronotal lobe slightly wider than long, but little longer than hind lobe;

anterior tibiae of male curved basally, a stout tooth one-third the distance toward apex; head, front lobe of pronotum shining reddish; hind lobe, much of hemelytra whitish yellow; scutellum dull reddish; hemelytral corium with two transverse dull reddish bands, one medially, the other apically.

Distribution: Jackson, Payne and Pontotoc counties.

Ptochiomera Say

Ptochiomera Say, 1831. Descriptions N. Sp. Heteropterous Hemiptera N. Amer. p. 18.

Plochiomera: Glover, 1876. Manuscript Notes J. Illustrations Insects Native Foreign Hemiptera Heteroptera, p. 58.

Plociomera: Distant, 1882. Biol. Centr.-Amer. Heteroptera, 1: 209.

Plociomerus: Provancher, 1886. Petite Fauna Can. 3: 77.

Type species: Ptochiomera nodosa Say, 1831. Descriptions N. Sp. Heteropterous Hemiptera N. Amer. p. 18.

Characteristics: Head wider than long, inserted in thorax to eyes; first antennal joint surpassing apex of head, third and fourth thicker than others; beak reaching mesocoxae; front lobe of pronotum subcylindrical or subglobose, distinctly narrower than hind lobe, hemelytra entire in macropterous form; basal tarsi of hind legs subequal to others united.

Barber (1953c) revised this genus.

Ptochiomera nodosa Say

Ptochiomera nodosa Say, 1831. Descriptions N. Sp. Heteropterous Hemiptera N. Amer. p. 18.

Aphanus clavatus Dallas, 1852. List Hemiptera Brit.

Mus. 2: 560.

Plociomera (Pamera) nodosa: Stal, 1867. Berlin Entomol. Z. 10: 161.

Plociomera nodosum Rathvon, 1869. In Mombert, Hist.

Lancaster County Pennsylvania, p. 549.

Aphanus nodosus Walker, 1872. Cat. Hemiptera Heteroptera Brit. Mus. 5: 77.

Characteristics: Length 3-3.5 mm; head, front lobe of pronotum, scutellum except carina, third and basal half of fourth antennal joints, dark brown; narrow front margin and hind lobe of pronotum, disk of hemelytral corium and clavus straw yellow, marked with numerous brown punctures; membrane hyaline; first and second antennal joints, beak pale yellow; pronotum with a transverse and longitudinal carina.

Distribution: Payne and Sequoyah counties.

Sisamnes Distant

Sisamnes Distant, 1893. Biol. Centr.-Amer. Heteroptera Supple. 1: 402.

Type species: Sisamnes contractus Distant, 1893. Ibid.

Characteristics: Third and fourth antennal segments strongly swollen, often clavate, fourth more swollen than third; antennae without erect hairs; pronotum with transverse constriction slightly impressed, front lobe two-thirds longer than hind lobe; scutellum with a low transverse and longitudinal carina; hemelytra entire in macropterous forms, reaching base of fourth tergite, membrane absent in brachypterous forms.

Barber (1953c) gave a key and synonymy to the species of this genus.

Sisamnes clavigerus (Uhler)

Cymbogaster diffusus Uhler, 1871 (nec vera). U. S.

Geol. Surv. Wyoming, p. 472.

Plociomerus diffusus: Uhler, 1872 (nec vera). In

Hayden, Prelim. Rept. U. S. Geol. Surv. Montana, p. 407.

Ptochiomera clavigera Uhler, 1895. In Gillette and Baker, Hemiptera Colorado, p. 24.

Sisamnes clavigera: Barber, 1928. J. New York Entomol.

Soc. 36: 177.

Characteristics: Length 2.5-2.8 mm; body uniformly reddish brown, densely and coarsely punctate with dark brown, each puncture bearing a minute yellow scale-like hair; apex of scutellum and a few small scattered spots on hemelytral corium dull yellow; hemelytra of brachypterous forms reaching base

of fourth tergite, membrane wanting.

Distribution: Slater (1964) gives as distribution Colorado, Kansas, Missouri, New Mexico and Texas.

Valonetus Barber

Valonetus Barber, 1918. J. New York Entomol. Soc. 26: 50.

Type species: Valonetus pilosus Barber, 1918=Plociomera puberula Stal, 1874. Kongliga Svenska Vet. Akad. Handl. 4; 153.

Characteristics: Body, antennae, legs strongly pilose, not shining; head slightly exserted, length width subequal; first antennal segment extending beyond apex of head; beak with first joint reaching base of head; pronotum without collar, constricted behind middle; basal tarsi of hind legs twice length of others combined.

Valonetus puberulus (Stal)

Plociomera puberulus Stal, 1874. Kongliga Svenska Vet.

Akad. Handl. 4: 153.

Ptochiomera puberula: Uhler, 1876. Bull. U. S. Geogr.

Geol. Surv. Territory 1: 308.

Valonetus pilosus Barber, 1918. J. New York Entomol.

Soc. 26: 50.

Sisamnes puberula: Barber, 1928. Ibid. 36: 176.

Valonetus puberula Barber, 1949. Proc. Entomol. Soc.

Washington, 26: 88.

Characteristics: Length 3 mm; head triangular, eyes strongly protruding; antennal segments one and two subequal; hind lobe of pronotum more sparsely and coarsely punctured than front lobe; scutellum and hemelytral corium sparsely punctured, clavus with three regular rows of punctures.

Distribution: Slater (1964) gives as distribution Colorado, Missouri and Texas.

Rhyparochromini Slater and China

Beosaria Stal, 1872. Ofversigt Finska Vet. Soc.

Forhandl. 29: 54.

Pachymerini Puton, 1875. Cat. Palearctic Hemiptera

2 Ed. p. 23.

Aphanini Puton, 1887. Rev. Entomol. 6: 105.

Aphanaria Distant, 1904. Fauna Brit. India Ceylon

Burma Rhynchota, 2: 78.

Aphanoidea Breddin, 1907. Deut. Entomol. Z. p. 207.

Beosini Van Duzee, 1916. Checklist N. Amer. Hemiptera,
p. 23.

Dieuchini Barber, 1958. Insects Micronesia Lygaeidae,
7(4): 216.

Rhyparochromini Slater and China, 1961. Bull. Zool.
Nomen. 18(5): 344.

This tribe is sufficiently characterized in the tribal key; thus no further description is given.

Peritrechus Fieber

Peritrechus Fieber, 1860. Europe. Hemiptera, p. 48.

Pasatus Stal, 1872. Ofversigt Vet. Soc. Forhandl. 29: 54.

Ischnodemus Provancher, 1886 (not Fieber, 1837).

Petite Fauna Can. 3: 75.

Peritrechus (Pasatus): Lethierry and Severin, 1894.

Gen. Cat. Hemiptera, 2: 210.

Type species: Beosus angusticollis Sahlberg, 1848.

Monogr. Geocorisarum Fenniae, p. 66.

Characteristics: Head as wide or wider than front margin of pronotum; beak reaching to or behind mesocoxae; pronotal disk without transverse constriction; scutellum much longer than wide, without carina, hemelytra entire.

Peritrechus fraternus Uhler

Peritrechus fraternus Uhler, 1871. Proc. Boston Soc.

Natur. Hist. 14: 103.

Ischnodemus falicus Provancher, 1886 (not Say, 1831).

Petite Fauna Can. 3: 75.

Characteristics: Length 4.3-5 mm; head, front lobe of pronotum, basal half or more of scutellum, venter dull black, finely pubescent, head with a brassy tinge; hind lobe of pronotum, V-shaped mark on scutellum, hemelytra brownish yellow marked with dark punctures; membrane whitish hyaline, often

clouded with brown.

Distribution: Adair, Caddo, Jackson, Kiowa, Love, Major, Marshall, Osage and Sequoyah counties.

Gonianotini Stal

Gonianotaria Stal, 1872. Ofversigt Finska Vet. Soc.

Forhandl. 29: 58.

Gonianotini: Van Duzee, 1916. New York Entomol. Soc.

p. 23.

Pterotmetini Gulde, 1936. Wanzen Mitteleuropas, 5(1): 93.

Anoraria Pfaler, 1941. Acta Zool. Fenniae, 30: 99.

Characteristics: Spiracle of fourth abdominal segment dorsal; two dorsal abdominal glands opening at the posterior margins of abdominal tergites four and five.

Torre-Bueno (1946) gave a key to the species of this tribe but listed the Delochilocoris taxa under the genus Aphanus.

Key to the Species

1. Dorsal color generally dull brownish yellow
 Emblethis vicarius
 Dorsal color generally black 2
2. Entire body black, Fig. 13 . . Delochilocoris umbrosus
 Head, pronotum except narrow side and hind margins,
 scutellum venter black Malezonotus rufipes

Delochilocoris Bergroth

Dorachosa Distant, 1893 (not Thunberg, 1805). Biol.

Centr.-Amer. Heteroptera Supple. 1: 409.

Delochilocoris Bergroth, 1893. Rev. Entomol. 12: 154.

Aphanus Horvath, 1908 (not Laporte, 1833). Ann. Mus.

Natur. Hist. Hungary, 6: 562.

Rhyparochromus Slater and Hurlbutt, 1957 (not Hahn,

1826). Proc. Entomol. Soc. Washington, 59: 74.

Type species: Dorachosa illuminatus Distant, 1893.

Biol. Centr.-Amer. Heteroptera Supple. 1: 409.

Characteristics: Head wider across eyes than long; beak reaching mesosternum; pronotum subquadrate, slightly convex, except basal margin concave; hemelytra entire.

Delochilocoris umbrosus Distant

Microtoma carbonaria Uhler, 1886 (not Rossi, 1790).

Checklist N. Amer. Hemiptera, p. 15.

Dorachosa illuminatus umbrosus Distant, 1893. Biol.

Centr.-Amer. Heteroptera Supple. 1: 409.

Delochilocoris umbrosa: Bergroth, 1893. Rev. Entomol.

12: 154.

Microtoma atrata Van Duzee, 1894 (not Geoze, 1778).

Bull. Buffalo Soc. Natur. Sci. 5: 175.

Rhyparochromus (Dorachosa) illuminatus: Gillette and

Baker, 1895 (not Distant, 1893). Bull. Colorado Agr. Exp. Sta. Tech. ser. 31: 26.

Belochilocoris illuminata: Wirtner, 1905 (not Distant, 1893). Ann. Carnegie Mus. 3: 194.

Aphanus umbrosus: Horvath, 1908. Ann. Mus. Natur. Hist. Hungary, 6: 561.

Aphanus plenus Britton, 1920 (not Distant, 1882). Bull. Connecticut Geol. Natur. Hist. Surv. 31: 79.

Characteristics: Length 6-7 mm; color black, shining; hind lobe of pronotum, scutellum, hemelytral corium finely, sparsely, irregularly punctate; hemelytral clavus with four rows of punctures, two median rows confused.

Distribution: LeFlore, Payne and Pontotoc counties.

Emblethis Fieber

Emblethis Fieber, 1860. Europe. Hemiptera, p. 51.

Emblethis (Gonianotus) Stal, 1862. Ofversigt Finska Vet. Soc. Forhandl. 19: 222.

Platychilus Jakovlev, 1874. Bull. Soc. Nat. Moscou, 48: 256.

Type species: Emblethis platychilis Fieber, 1861=Lygaeus verbasci Fabricius, 1803. Syst. Rhyngotorum, p. 235.

Characteristics: Head scarcely as wide across the eyes as front margin of pronotum; beak reaching mesosternum, first joint as long as head; pronotum wider than long, sides widely

flattened, disk slightly convex, front margin concave; scutellar length subequal to length of pronotum, not carinate; hemelytra entire; hind tibiae with setose bristles; basal segment of hind tarsi twice as long as others united.

Emblethis vicarius Horvath

Emblethis arenarius auct. (not Linnaeus, 1758).

Emblethis griseus Forbes, 1900 (not Wolff, 1802). 21st

Rept. State Entomol. Noxious Beneficial Insects

Illinois, p. 93.

Emblethis vicarius Horvath, 1908. Ann. Hist.-Natur. Mus.

Hungary, 6: 563.

Gonianotus marginepunctatus Banks, 1910 (not Wolff,

1804). Cat. Nearctic Hemiptera, p. 65.

Characteristics: Length 6-6.2 mm; color above dull brownish yellow, thickly marked with dark brown punctures, often appearing as dark blotches; hemelytra paler brown, often spotted dark brown near base.

Distribution: Cimarron, Dewey and Payne counties.

Malezonotus Barber

Malezonotus Barber, 1918. J. New York Entomol. Soc. 2: 54.

Type species: Trapezonotus rufipes Stal, 1874. Kongliga Svenska Vet. Akad. Handl. 4: 159.

Characteristics: First antennal segment barely exceeding

apex of head; pronotum not punctate, hind margin broadly concave before scutellum; scutellum longer than wide, not or very finely punctate; hemelytral clavus with three irregular rows of punctures, corium irregularly covered with punctures; front femora swollen, armed beneath with two or three teeth; hind tibiae with short rigid bristles.

Malezonotus rufipes (Stal)

Trapezonotus rufipes Stal, 1874. Kongliga Svenska Vet.

Akad. Handl. 4: 159.

Malezonotus sodalicus Uhler, 1876. Rept. U. S. Geol.

Geogr. Surv. Territory, 5: 835 (in part).

Sphagisticus rufipes: Torre-Bueno, 1914. Entomol. News, 25: 230.

Rhyparochromus sodalicus Van Duzee, 1917 (not Uhler, 1876). Cat. N. Amer. Hemiptera, p. 190.

Malezonotus rufipes: Barber, 1918. J. New York Entomol. Soc. 26: 54.

Characteristics: Length 4-5 mm; head, pronotum, scutellum, a large spot on hemelytral corium and diffused spot on membrane and venter blackish; lateral margins of pronotum pale; antennae and legs reddish yellow.

Distribution: Payne County.

Megalonotini Slater

Rhyparochromaria Stal, 1872. Ofversigt Finska Vet.

Soc. Forhandl. 29: 51.

Rhyparochrominii Acloque, 1897. Fauna France, p. 375.

Megalonotini Slater, 1957. Bull. Brooklyn Entomol.

Soc. 52: 35.

This tribe is sufficiently characterized by the tribal key; thus no further description is given.

Slater and Sweet (1961) discussed the tribe's relationship with other similar tribes. Torre-Bueno (1946) gave a key to the taxa of the tribe but included it in the tribe Rhyparochromini.

Sphragisticus Stal

Sphragisticus Stal, 1872. Ofversigt Finska Vet. Soc.

Forhandl. 29: 55.

Type species: Lygaeus nebulosus Fallen, 1807. Monogr. Cimicum Sueciae, p. 65.

Characteristics: Head inserted to eyes, but slightly wider across eyes than front margin of pronotum; beak reaching mesocoxae, scutellum longer than wide, hemelytra entire.

Sphragisticus nebulosus Fallen

Lygaeus nebulosus Fallen, 1807. Monogr. Cimicum

Sueciae, p. 65.

Pachymerus nebulosus: Schilling, 1829. Beitr. Entomol.
1: 69.

Pamera fallax Say, 1831. Descriptions N. Sp. Heterop-
terous Hemiptera N. Amer. p. 20.

Rhyparochromus nebulosus: Sahlberg, 1848. Monogr.
Geocorisarum Fenniae, p. 56.

Trapezonotus nebulosus: Fieber, 1861. Europe. Hemip-
tera, p. 190.

Lygaeus (Trapezonotus) nebulosus: Thomson, 1870.
Opusc. Entomol. 2: 12.

Rhyparochromus fallax: Uhler, 1872. In Hayden, Prelim.
Rept. U. S. Geol. Surv. Montana, p. 407.

Trapezonotus (Sphragisticus) nebulosus: Stal, 1874.
Kongliga Svenska Vet. Akad. Handl. 4: 159.

Sphragisticus nebulosus: Puton, 1886. Cat. Palearctic
Hemiptera 3 Ed. p. 28.

Characteristics: Length 5-5.3 mm; head, disk of front
lobe of pronotum, scutellum, venter dull black; hind lobe
of pronotum, two subapical spots on scutellum, hemelytra
grayish yellow, dark brown punctures; membrane brownish
yellow.

Distribution: Caddo and Roger Mills counties.

LITERATURE CITED

- Barber, H. G. 1937. Descriptions of six new species of Blissus (Hemiptera-Heteroptera: Lygaeidae). Proc. Entomol. Soc. Washington, 39(4): 81-86.
- _____. 1947. Revision of the genus Nysius in the United States and Canada (Hemiptera-Heteroptera: Lygaeidae). J. Washington Acad. Sci. 37: 354-366.
- _____. 1949. Some synonyms in the family Lygaeidae (Hemiptera). Proc. Entomol. Soc. Washington, 51: 273-276.
- _____. 1953a. A revision of the genus Kleidocerys Stephens in the United States (Hemiptera, Lygaeidae). Ibid. 55: 273-283.
- _____. 1953b. The genus Pachybrachius in the United States and Canada with the description of two new species (Hemiptera: Lygaeidae). J. New York Entomol. Soc. 60: 211-220.
- _____. 1953c. A second revision of the genus Ptochiomera Say and its allies (Hemiptera, Lygaeidae). Proc. Entomol. Soc. Washington, 55: 19-27.
- Blatchley, W. S. 1926. Heteroptera or true bugs of eastern North America, with special reference to the fauna of Indiana and Florida. Indianapolis, Natur. Publ. Co. 1116 pp.
- Froeschner, R. C. 1944. Contributions to a synopsis of the Heteroptera of Missouri, part 3. Amer. Midland Natur. 31: 638-683.
- Hantsbarger, W. H. 1957. Nysius of South Dakota (Lygaeidae-Hemiptera). J. Kansas Entomol. Soc. 39(4): 156-159.

- McAtee, W. L. 1914. Key to the nearctic genera and species of Geocorinae (Hemiptera-Lygaeidae). Proc. Biol. Soc. Washington, 27: 125-136.
- Ortenburger, A. I. 1927. Some Oklahoma Hemiptera. Proc. Acad. Sci. 6: 184-192.
- Parshley, H. M. 1919. On some Hemiptera from western Canada. Occasional Papers Mus. Zool. Univ. Michigan, 71: 1-35.
- _____. 1923. The distribution and forms of Lygaeus kalmii Stal, with remarks on insect zoogeography (Hemiptera, Lygaeidae). Can. Entomol. 55: 81-84.
- Simanton, W. A., and F. Andre. 1935. Two Hemiptera for use as experimental insects in insecticide studies. J. Econ. Entomol. 28: 695-696.
- Slater, J. A. 1952. An annotated list of the Lygaeidae of Iowa and Illinois (Hemiptera: Heteroptera). Proc. Iowa Acad. Sci. 59: 521-540.
- _____. 1955. A revision of the subfamily Pachygronthinae of the world (Hemiptera: Lygaeidae). Philippine J. Sci. 84: 1-160.
- _____. 1964. A catalogue of the Lygaeidae of the world. Storrs, Univ. Connecticut Press, 1668 pp.
- _____ and M. H. Sweet. 1961. A contribution to the higher classification of the Megalonotinae (Hemiptera: Lygaeidae). Ann. Entomol. Soc. Amer. 54: 203-209.
- Stoner, Adair, D. E. Bryan and W. A. Drew. 1962. A partial inventory of insect populations in tallgrass prairie pastures in north central Oklahoma. Proc. Oklahoma Acad. Sci. 42: 143-157.
- Torre-Bueno, J. R. 1946. A synopsis of the Hemiptera-Heteroptera of America north of Mexico, 3, Family 11 Lygaeidae. Entomol. Amer. 26: 1-141.
- Van Duzee, Edward P. 1917. Catalogue of the Hemiptera

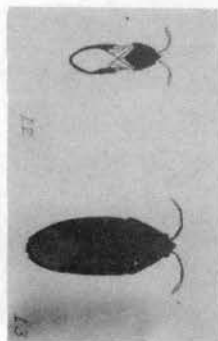
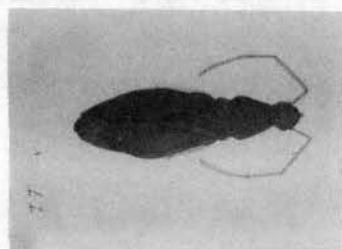
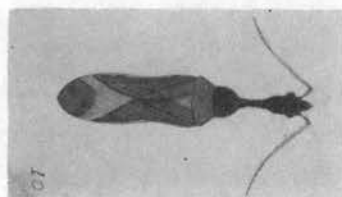
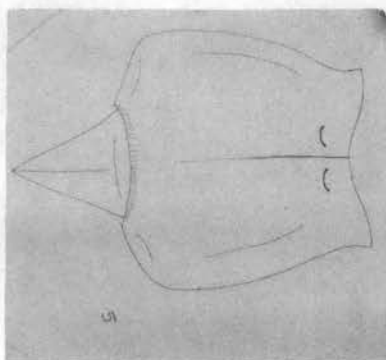
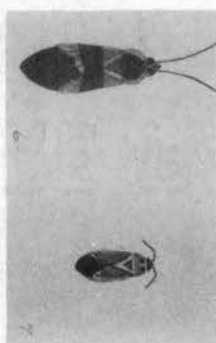
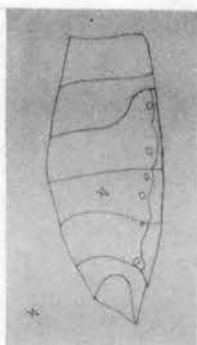
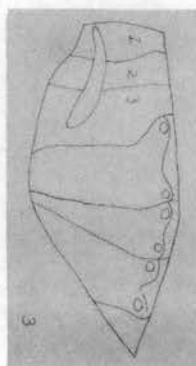
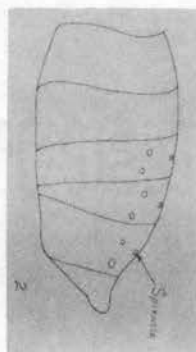
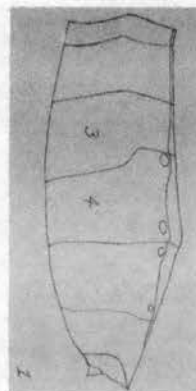
of America north of Mexico. Univ. California Press
Entomol. 2: 1-902.

PLATE II

- Fig. 1. Lateral view of abdomen of Rhyparochrominae, Myodocha serripes Oliver, showing curved suture between abdominal venters three and four. The posterior glandular spot on venter four is closer to hind margin than to front glandular spot.
- Fig. 2. Lateral view of abdomen of Geocorinae species showing visible spiracles on segments three through five and not on one and two. The suture between venters three and four is not curved.
- Fig. 3. Lateral view of abdomen of Myodochini, Pseudopamera nitidicollis (Stal), showing the lunate, strigose area on venters one through three.
- Fig. 4. Lateral view of abdomen of Lethaeini species showing the posterior glandular spot on venter four closer to front glandular spot than to hind margin.
- Fig. 5. Dorsal view of pronotum and scutellum of Lygaeinae, Oncopeltus fasciatus (Dallas).
- Fig. 6. Dorsal view of Oncopeltus fasciatus (Dallas).
- Fig. 7. Dorsal view of Melanocoryphus bicrucis (Say).
- Fig. 8. Dorsal view of Melanocoryphus lateralis (Dallas).
- Fig. 9. Dorsal view of Lygaeus turcicus Fabricius.
- Fig. 10. Dorsal view of Myodocha serripes Oliver.
- Fig. 11. Dorsal view of Cnemodus mavortius (Say).

Fig. 12. Dorsal view of Blissus leucopterus (Say).

Fig. 13. Dorsal view of Delochilocoris umbrosus (Distant).



VITA

Kurt Friedrich Schaefer

Candidate for the Degree of

Doctor of Philosophy

Thesis: PART I, THE AQUATIC AND SEMIAQUATIC HEMIPTERA OF
OKLAHOMA; PART II, THE LYGAEIDAE OF OKLAHOMA (HEMIPTERA)

Major Field: Entomology

Biographical:

Personal Data: Born at Chicago, Illinois, November 26,
1935, the son of Friedrich Erich and Ann Schaefer.

Education: Attended elementary school at Villa Park,
Illinois; graduated from York Community High
School, Elmhurst, Illinois, 1954; received the
Bachelor of Science degree from Panhandle A. and
M. College, Goodwell, Oklahoma, with a major in
Biology, May, 1958; received the Master of Science
degree from Oklahoma State University, with a
major in Entomology, August, 1962; completed
requirements for the Doctor of Philosophy degree,
May, 1966.

Professional experience: 1958-61, taught biology and
chemistry at Amarillo High School, Amarillo, Texas;
1961-65, Graduate Teaching Assistant in Botany and
Entomology, Oklahoma State University; 1965, Public
Health Service Trainee in Zoology; 1965-1966,
Assistant Professor in Biology at Panhandle A. and
M. College.

Member of Phi Sigma, The Entomological Society of
America, The Central States Entomology Society,
The Oklahoma Academy of Science, The Society of
Sigma Xi, Canadian Entomologist, Society of
Systematic Zoology, The Southwestern Naturalist.